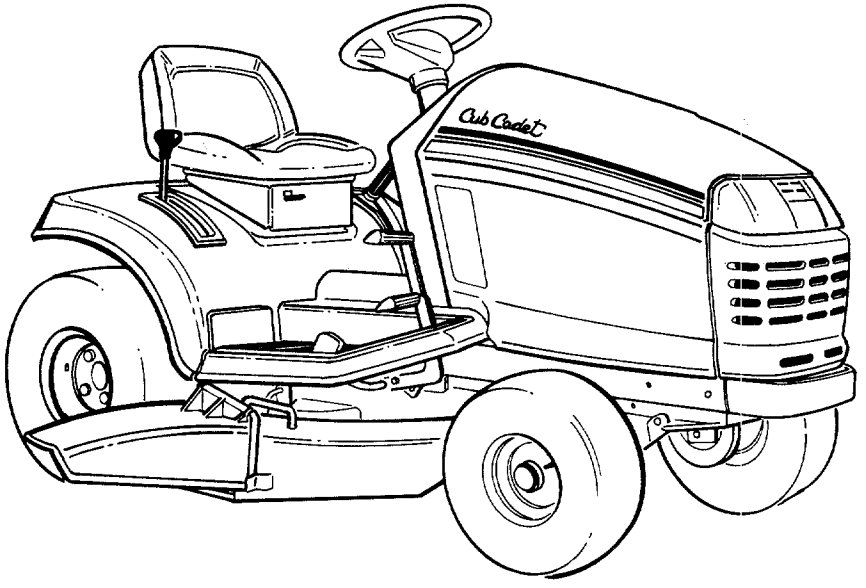
Cub Cadet®

Power Equipment

Owner's Manual



Series 2000 TRACTOR

Model Numbers
2160
2165

Important:

Read Safety Rules and Instructions Carefully

Thank you for purchasing an American-built product

CUB CADET CORPORATION • P.O. BOX 368023 • CLEVELAND, OHIO 44136-9723

INTED IN U.S.A.

FORM NO. 772-9064

LIMITED WARRANTY

TWO-YEAR RESIDENTIAL
ONE-YEAR COMMERCIAL

Proper maintenance of your Cub Cadet equipment is the owner's responsibility. Follow the instructions in your owner's manual for correct lubricants and maintenance schedule. Your Cub Cadet dealer carries a complete line of quality lubricants and filters for your equipment's engine, transmission, chassis and attachments.

RIDING MOWERS, LAWN TRACTORS, GARDEN TRACTORS, CUB CADET ATTACHMENTS AND HOME MAINTENANCE PRODUCTS

This limited warranty for residential users, covers any defect in materials or workmanship in your Cub Cadet equipment for two years from the date of purchase for the first user purchaser.

We will replace or repair any part or parts without charge through your authorized Cub Cadet dealer.

Batteries have a one-year prorated limited warranty with 100% replacement during the first three months.

V-belts for either the traction drive or any attachments are covered for one year only.

Cub Cadet equipment used commercially is warranted for one year only.

(Commercial use is defined as either having hired operators or used for income producing purpose.)

ITEMS NOT COVERED

The warranty does not cover routine maintenance items such as lubricants, filters (oil, fuel, air and hydraulic), cleaning, tune-ups, brake and/or clutch inspection, adjustments made as part of normal maintenance, blade sharpening, set-up, abuse, accidents and normal wear. It does not cover incidental costs such as transporting your equipment to and from the dealer, telephone charges or renting a product temporarily to replace a warranted product.

There is no other express warranty.

HOW TO OBTAIN SERVICE

Contact your authorized Cub Cadet servicing dealer who sold you your Cub Cadet equipment. If this dealer is not available, see the Consumer Yellow Pages under "lawn mowers" for the name of a dealer near you.

If you need further assistance in finding an authorized Cub Cadet servicing dealer, contact:

Cub Cadet Corporation
Post Office Box 368023
Cleveland, Ohio 44136

HOW DOES STATE LAW APPLY?

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

WARNING

This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester muffler is available at your nearest engine authorized service center.

IMPORTANT

SAFE OPERATION PRACTICES

THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR UNIT. WHEN YOU SEE THIS SYMBOL – **HEED ITS WARNING.**

DANGER: Your lawn mower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in injury. This lawn mower is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

I. GENERAL OPERATION

1. Read, understand and follow all instructions in the manual and on the machine before starting. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Only allow responsible individuals familiar with the instructions to operate the machine. Know controls and how to stop the machine quickly.
3. Do not put hands or feet under cutting deck or near rotating parts.

4. Clear the area of objects such as rocks, toys, wire, etc. which could be picked up and thrown by the blade. A small object may have been overlooked and could be accidentally thrown by the mower in any direction and cause injury to you or a bystander. To help avoid a thrown objects injury, keep children, animals, bystanders and helpers at least 75 feet from the mower while it is in operation. Always wear safety glasses with side shields or safety goggles during operation or while performing an adjustment or repair, to protect eyes from foreign objects. Stop the blade(s) when crossing gravel drives, walks or roads.

5. Be sure the area is clear of other people before mowing. Stop machine if anyone enters the area.

6. Never carry passengers.

7. Disengage blade(s) before shifting into reverse and backing up. Always look down and behind before and while backing.

8. Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the chute guard in place.

9. Slow down before turning. Operate the machine smoothly. Avoid erratic operation and excessive speed.

10. Never leave a running machine unattended. Always turn off blade(s), place transmission in neutral, set park brake, stop engine and remove key before dismounting.

11. Turn off blade(s) when not mowing.

12. Stop engine and wait until blade(s) comes to a complete stop before (a) removing grass catcher or unclogging chute, or (b) making any repairs, adjusting or removing any grass or debris.

13. Mow only in daylight or good artificial light.

14. Do not operate the machine while under the influence of alcohol or drugs.

15. Watch for traffic when operating near or crossing roadways.

16. Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down a ramp onto a trailer or truck under power, because the unit could tip over causing serious personal injury. The unit must be pushed manually on a ramp to load or unload properly.

17. Never make a cutting height adjustment while the engine is running if operator must dismount to do so.

18. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals or sneakers.

19. Check overhead clearance carefully before driving under power lines, wires, bridges or low hanging tree branches, before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit, which could result in serious injury.

20. Disengage all attachment clutches, thoroughly depress the brake pedal and shift into neutral before attempting to start engine.

21. Your mower is designed to cut normal residential grass of a height no more than 10". Do not attempt to mow through unusually tall, dry grass (e.g. pasture) or piles of dry leaves. Debris may build up on the mower deck or contact the engine exhaust presenting a potential fire hazard.

22. Use only accessories approved for this machine by *Cub Cadet*. Read, understand and follow all instructions provided with the approved accessory.

II. SLOPE OPERATION

Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. **All** slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15° as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO:

Mow up and down slopes, not across.

Remove obstacles such as rocks, limbs, etc.

Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. **Tall grass can hide obstacles.**

Use slow speed. Choose a low enough gear so that you will not have to stop or shift while on the slope. Always keep machine in gear when going down slopes to take advantage of engine braking action.

Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.

Use extra care with grass catchers or other attachments. These can change the stability of the machine.

Keep all movement on the slopes **slow** and **gradual**. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift and rapidly flip over backwards which could cause serious injury.

Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly **straight** down the slope.

DO NOT:

Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.

Do not mow near drop-offs, ditches or embankments. The mower could suddenly turn over if a wheel is over the edge of a cliff or ditch, or if an edge caves in.

Do not mow on wet grass. Reduced traction could cause sliding.

Do not try to stabilize the machine by putting your foot on the ground.

Do not use grass catcher on steep slopes.

III. CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. **Never** assume that children will remain where you last saw them.

1. Keep children out of the mowing area and in watchful care of an adult other than the operator.
2. Be alert and turn machine off if children enter the area.
3. Before and when backing, look behind and **down** for small children.
4. Never carry children. They may fall off and be seriously injured or interfere with safe machine operation.
5. Never allow children under 14 years old to operate the machine. Children 14 years and over should only operate machine under close parental supervision and proper instruction.
6. Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure your vision of a child or other hazard.
7. Remove key when machine is unattended to prevent unauthorized operation.

IV. SERVICE

1. Use extreme care in handling gasoline and other fuels. They are extremely flammable and the vapors are explosive.
   A. Use only an approved container.
   B. Never remove fuel cap or add fuel with the engine running. Allow engine to cool at least two minutes before refueling.
   C. Replace fuel cap securely and wipe off any spilled fuel before starting the engine as it may cause a fire or explosion.
   D. Extinguish all cigarettes, cigars, pipes and other sources of ignition.
   E. Never refuel the machine indoors because fuel vapors will accumulate in the area.
   F. Never store the fuel container or machine inside where there is an open flame or spark, such as a gas hot water heater, space heater or furnace.
2. Never run a machine inside a closed area.
3. To reduce fire hazard, keep the machine free of grass, leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool at least 5 minutes before storing.
4. Before cleaning, repairing or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
5. Check the blade and engine mounting bolts at frequent intervals for proper tightness. Also visually inspect blade for damage (e.g., excessive wear, bent, cracked). Replace with blade which meets original equipment specifications.
6. Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition.
7. Never tamper with safety devices. Check their proper operation regularly. Use all guards as instructed in this manual.
8. After striking a foreign object, stop the engine, remove the wire from the spark plug and thoroughly inspect the mower for any damage. Repair the damage before restarting and operating the mower.
9. Grass catcher components are subject to wear, damage and deteriorate, which could expose moving parts or allow objects to be thrown. For your safety protection, frequently check components and replace with manufacturer's recommended parts when necessary.

10. Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves and use extra caution when servicing blade(s).

11. Check brake operation frequently. Adjust and service as required.

12. Muffler, engine and belt guards become hot during operation and can cause a burn. Allow to cool down before touching.

13. Do not change the engine governor settings or overspeed the engine. Excessive engine speeds are dangerous.

14. Observe proper disposal laws and regulations. Improper disposal of fluids and materials can harm the environment and the ecology.

A. Prior to disposal, determine the proper method to dispose of waste from your local Environmental Protection Agency. Recycling centers are established to properly dispose of materials in an environmentally safe fashion.

B. Use proper containers when draining fluids. Do not use food or beverage containers that may mislead someone into drinking from them. Properly dispose of the containers immediately following the draining of fluids.

C. DO NOT pour oil or other fluids into the ground, down a drain or into a stream, pond, lake or other body of water. Observe Environmental Protection Agency regulations when disposing of oil, fuel, coolant, brake fluid, filters, batteries, tires and other harmful waste.

OWNER'S MANUAL

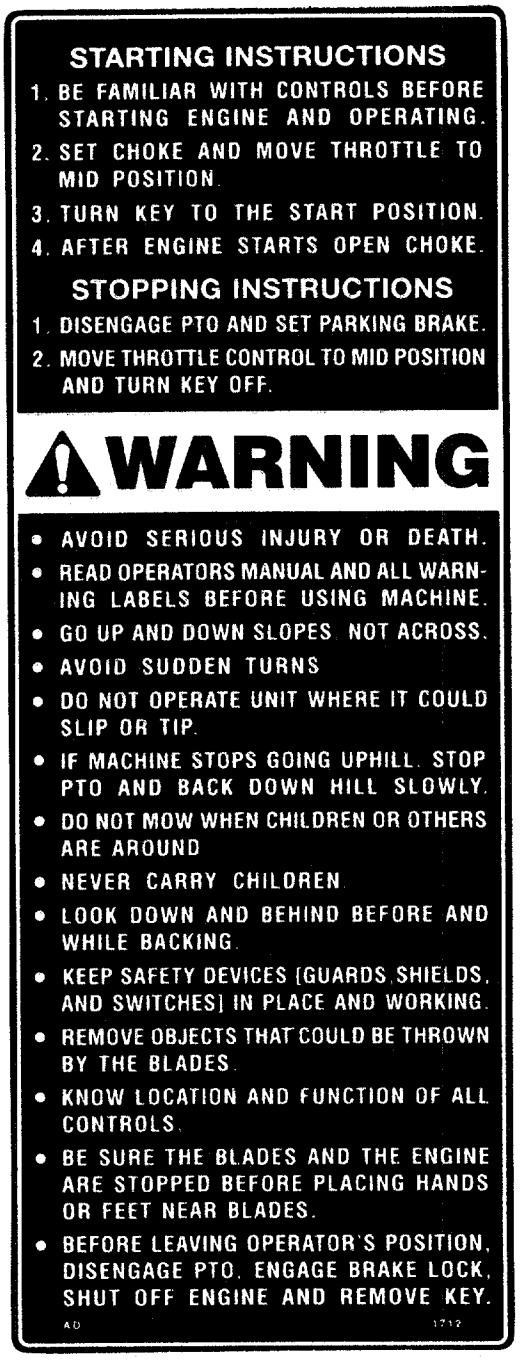
SAFETY LABEL

WARNING – ***YOUR RESPONSIBILITY***

Restrict the use of this power machine to persons who read, understand and follow the warnings and instructions in this manual and on the machine.

PRODUCT GRAPHICS

Keep safety product graphics (decals) clean. Replace any safety graphic that is damaged, destroyed, missing, painted over or can no longer be read. Replacement safety graphics are available through your dealer.


STARTING INSTRUCTIONS
1. BE FAMILIAR WITH CONTROLS BEFORE STARTING ENGINE AND OPERATING.
2. SET CHOKE AND MOVE THROTTLE TO MID POSITION.
3. TURN KEY TO THE START POSITION.
4. AFTER ENGINE STARTS OPEN CHOKE.
STOPPING INSTRUCTIONS
1. DISENGAGE PTO AND SET PARKING BRAKE.
2. MOVE THROTTLE CONTROL TO MID POSITION AND TURN KEY OFF.
WARNING
• AVOID SERIOUS INJURY OR DEATH.
• READ OPERATORS MANUAL AND ALL WARNING LABELS BEFORE USING MACHINE.
• GO UP AND DOWN SLOPES NOT ACROSS.
• AVOID SUDDEN TURNS
• DO NOT OPERATE UNIT WHERE IT COULD SLIP OR TIP.
• IF MACHINE STOPS GOING UPHILL, STOP PTO AND BACK DOWN HILL SLOWLY.
• DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND
• NEVER CARRY CHILDREN
• LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
• KEEP SAFETY DEVICES [GUARDS, SHIELDS, AND SWITCHES] IN PLACE AND WORKING.
• REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADES.
• KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
• BE SURE THE BLADES AND THE ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADES.
• BEFORE LEAVING OPERATOR'S POSITION, DISENGAGE PTO, ENGAGE BRAKE LOCK, SHUT OFF ENGINE AND REMOVE KEY.
AD
1712

GENERAL SAFETY INSTRUCTIONS WARNING – LOCATED ON RIGHT SIDE OF RUNNING BOARD (MODEL 2165 SHOWN)

TO THE OWNER

Contained in this manual are operation, lubrication and maintenance instructions for *Cub Cadet* tractors, Models 2160 and 2165. The material has been prepared in detail to help you better understand the correct care and efficient operation of your tractor. Before you operate the tractor, study this manual carefully. Additional copies may be ordered from your dealer at a nominal price.

Your local authorized dealer is interested in the performance you receive from your tractor. He has factory-trained servicemen, informed in the latest method of servicing tractors, modern tools and original-equipment service parts which assure proper fit and good performance.

CAUTION

DO NOT tow your Model 2165 tractor. Towing or pushing for more than a few feet may damage the hydrostatic drive unit.

The *Cub Cadet* 2165 Tractor has a hydrostatic drive unit and will require minimum service if recommended operation and maintenance procedures are followed.

To obtain top performance and assure economical operation the tractor should be inspected, depending on its use, periodically, or at least once a year, by your authorized dealer.

When in need of parts, always specify the model, chassis, and engine serial numbers, including the prefix and suffix letters. Write these serial numbers in the space provided on this page.

Should you have difficulties with the unit, consult your authorized dealer. UNDER NO CIRCUMSTANCES SHOULD YOU ATTEMPT TO SERVICE THESE UNITS YOURSELF. Only your dealer is authorized to repair or replace units on this drive under the terms of the warranty. Should you desire additional information not found in this manual, contact your authorized *Cub Cadet* dealer.

SERIAL NUMBER LOCATION

NOTE

LEFT and RIGHT indicate the left and right sides of the tractor when facing forward in the driver's seat. Reference to FRONT indicates grille end of the tractor; to REAR the drawbar end.

Chassis serial number plate is on the left hand side of frame under the running board. (Refer to Figure 1.)

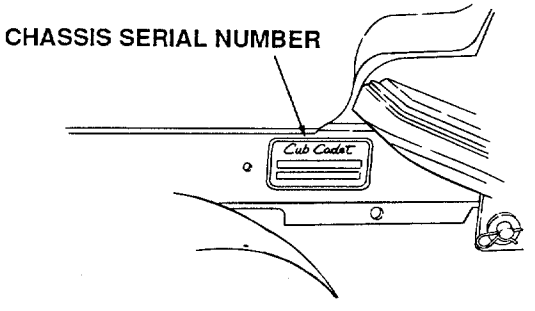


Figure 1

Engine serial number plate is located on the right side of engine blower housing. (Refer to Figure 2.)

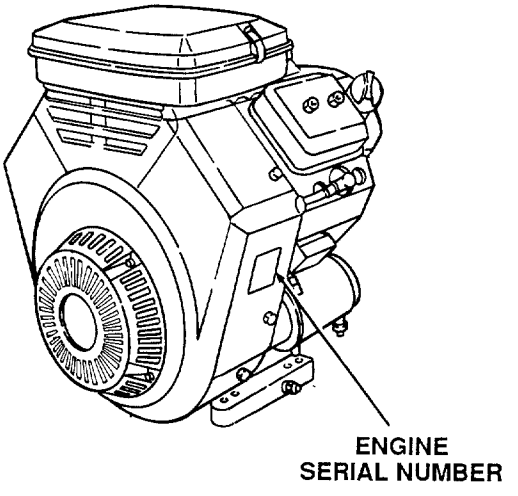


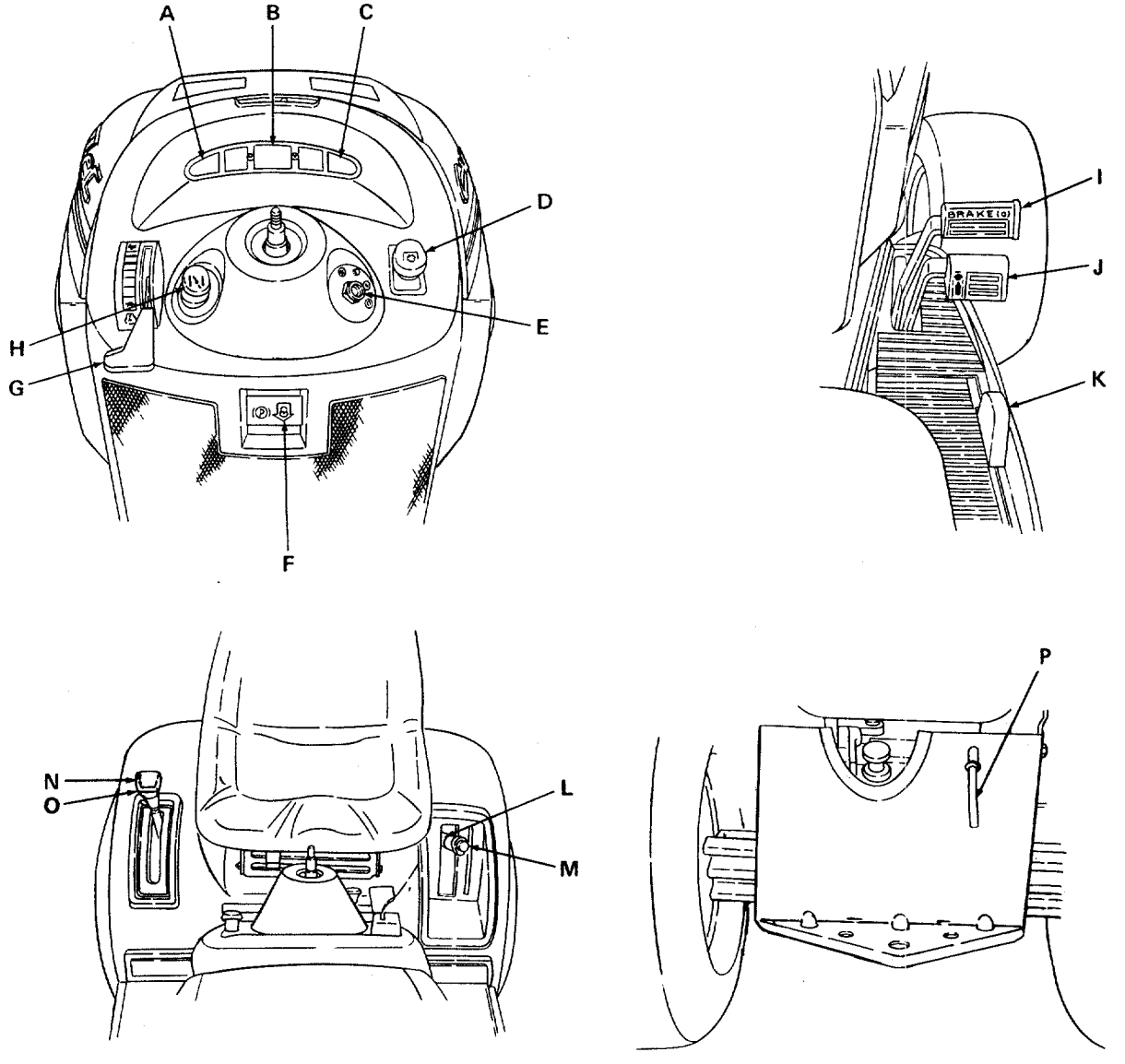
Figure 2

MODEL _____

DELIVERY DATE _____

SECTION I. CONTROLS AND INDICATORS

Your *Cub Cadet* Tractor has been safety engineered. Thoroughly acquaint yourself with all the controls and indicators before attempting to start or operate the tractor.



A. Low Oil Indicator
B. Hour Meter
C. Amp Indicator
D. Power Take-Off (PTO) Control Switch
E. Ignition/Light Switch
F. Brake Pedal Lock
G. Throttle Control Lever
H. Choke Control
I. Brake Pedal
J. Forward Control Pedal
K. Reverse Control Pedal
L. Lift Handle
M. Lift Height Indicator
N. Speed Control Lever (2160 only)
O. Cruise Control Lever (2165 only)
P. Transmission Release Lever (2165 only)
Q. Seat Adjustment Lever (Not Shown)
R. Fuse (Not Shown)
S. Safety Interlock Switches (Not Shown)

Figure 3

A. LOW OIL INDICATOR

This indicator will illuminate when the oil level is low.

CAUTION

When LOW OIL indicator illuminates, stop the tractor and check the oil level. Continuing to operate the tractor could result in severe damage to the engine.

B. HOUR METER

The hour meter indicates the actual hours of engine operation. This enables the operator to determine when lubrication, change of oil or periodic inspections are necessary. It also provides a means of computing cost of specific jobs. The hour meter operates whenever the engine is running or the ignition key is in the "ON" position.

C. AMP INDICATOR

This indicator will illuminate when a problem exists with the charging system or the battery. If this indicator illuminates, stop the tractor and contact your *Cub Cadet* Dealer.

D. POWER TAKE-OFF (PTO) CONTROL SWITCH

The power take-off (PTO) control switch, which is located on the right side of the instrument panel (see Figure 3), operates an electric clutch. This electric clutch controls the engagement ("RUN") or disengagement ("OFF") of the front PTO.

E. IGNITION/LIGHT SWITCH

WARNING

Remove the key from the tractor when the tractor is not in use to prevent accidental starting and battery discharge.

The combination lights and ignition switch is a four-position switch. (See Figure 4.)

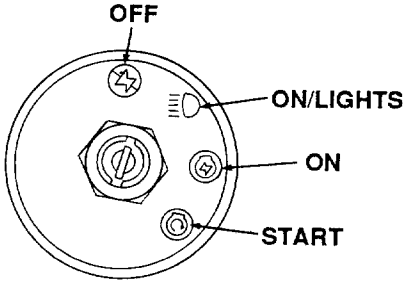


Figure 4

F. BRAKE PEDAL LOCK

WARNING

The hydrostatic transmission will not hold the tractor on a hill. In a short period of time (depending on the steepness of the hill) the oil will drain from the transmission and allow the tractor to roll downhill. To avoid an accident and/or possible injury, engage the brake pedal lock.

Always engage the brake pedal lock when dismounting the tractor. To engage the brake pedal lock depress brake pedal and push down on the brake pedal lock lever. Hold the lever down while releasing the brake pedal. Release the brake pedal lock lever last.

G. THROTTLE CONTROL LEVER

This lever controls the speed of the engine. When set in a given position, it will maintain a uniform engine speed.

NOTE

When using power take-off operated equipment, best performance is achieved with the throttle lever in the "FAST" position.

This symbol shows slow position.

This symbol shows fast position.

H. CHOKE CONTROL

The choke control is operated manually. Pull knob out to choke engine. Push knob in to open choke. (See Figure 3.)

I. BRAKE PEDAL

Brake pedal is located in the right front running board above the forward control pedal. Press down to stop tractor or disengage cruise control. Brake pedal must be pressed all the way down to activate the safety starting switch.

J. FORWARD CONTROL PEDAL

Forward control pedal is located in the right front running board below the brake pedal. Slowly press down on pedal to move forward.

K. REVERSE CONTROL PEDAL

WARNING

Check behind tractor to be sure area is clear of people, pets or obstacles. Use a slower speed when traveling in reverse to maintain control of tractor.

Reverse control pedal is located in the right front running board below the brake and forward control pedals. Press down on pedal to move in reverse.

L. LIFT HANDLE

The lift handle is located in the left fender and is used to raise and lower equipment used with the tractor. The equipment can be set in six positions by depressing the button on the top of the lever and releasing it when the desired position is reached. (Refer to Figure 3.) Push or pull slightly on lever before depressing button. There is a lift assist spring which reduces the effort needed to lift attachments. To adjust tension refer to **ADJUSTMENTS** in Section III.

M. LIFT HEIGHT INDICATOR

The lift height indicator is located in the left fender and indicates the height of deck attachment when installed. (See Figure 3.)

N. SPEED CONTROL LEVER (2160 only)

The speed control lever is located in the right fender and is used to select any speed in the forward and reverse directions.

Moving the speed control lever forward provides increased forward and reverse speeds. (See Figure 3.)

O. CRUISE CONTROL LEVER (2165 only)

The cruise control lever is located in the right fender and is used to maintain a desired forward speed without keeping your foot on the forward control pedal. (See Figure 3.)

P. TRANSMISSION RELEASE LEVER (2165 only)

The transmission release lever is located in rear of tractor in drawbar and disconnects the transmission from the pump so the unit can be pushed a short distance by hand without running. (See Figure 3.)

To disengage transmission pull back on the lever, lift up into slot and release. To reengage transmission pull back on the lever, drop out of slot and release.

Q. SEAT ADJUSTMENT LEVER

The seat adjustment lever is used to move the seat forward or rearward into one of five positions. (See Figure 5.) Refer to **ADJUSTING THE SEAT** in Section III.

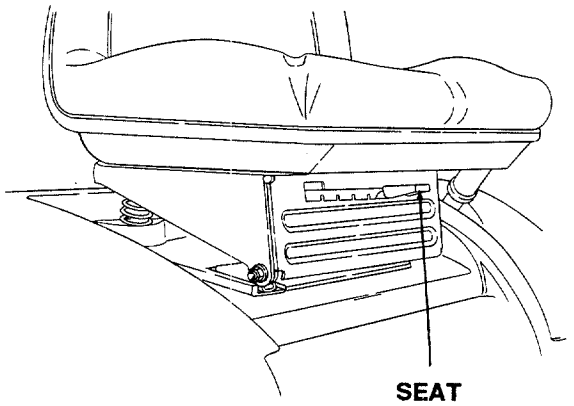


Figure 5

R. FUSES

The fuses are located under the hood between the indicator lamps and hour meter. Fuses are installed to protect the tractor's electrical circuitry and components from damage caused by excessive amperage overload. (Refer to Figure 6.)

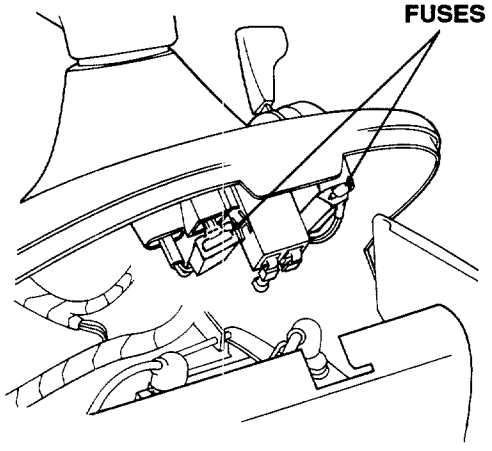


Figure 6

S. SAFETY INTERLOCK SWITCHES

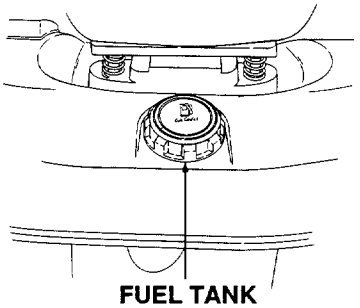
This tractor is equipped with a safety interlock system for the protection of the operator. If the interlock system should ever malfunction, do not operate the tractor. Contact your authorized *Cub Cadet* Dealer. The safety interlock system prevents the engine from cranking or starting unless the brake pedal is fully depressed, and the PTO switch is in the "OFF" position.

The safety interlock system will automatically shut off the engine if the operator leaves the seat before engaging the brake lock.

The safety interlock system will automatically disengage the PTO if the operator leaves the seat with the PTO in the "RUN" position, or the unit is shifted into reverse with the PTO in the "RUN" position. To reengage the PTO, shift into neutral ("N"), move the PTO switch into the "OFF" position and then engage the PTO while seated.

FUEL TANK

The fuel tank is located in the rear of the tractor. The fuel tank filler cap is located on the center of the fender. (See Figure 7.)



FUEL TANK FILLER CAP

Figure 7

HOOD AND SIDE PANELS

The tractor hood is arranged to swing up and forward for easy access to the engine compartment. (See Figure 8.) Whenever engine maintenance is required, the side panels can be removed.

WARNING

If engine is hot, use caution not to burn yourself when removing the side panels.

To remove either right or left side panel, refer to Figure 8 and proceed as follows:

1. Engage the brake lock and raise the hood.
2. Loosen rear wing nut and upper front wing nut.
3. Pull front of side panel from between retainers on grille.
4. Slide side panel forward and out of groove in dash panel.

To install either right or left side panel, refer to Figure 8 and proceed as follows:

1. Slide rear of panel into groove in dash panel.
2. Place rear tab between rear wing nut and bulkhead.
3. Slide slots, on front flange of panel, onto retainers on grille making sure flange is between tapered guide and grille.
4. Tighten rear and upper front wing nuts and close hood.

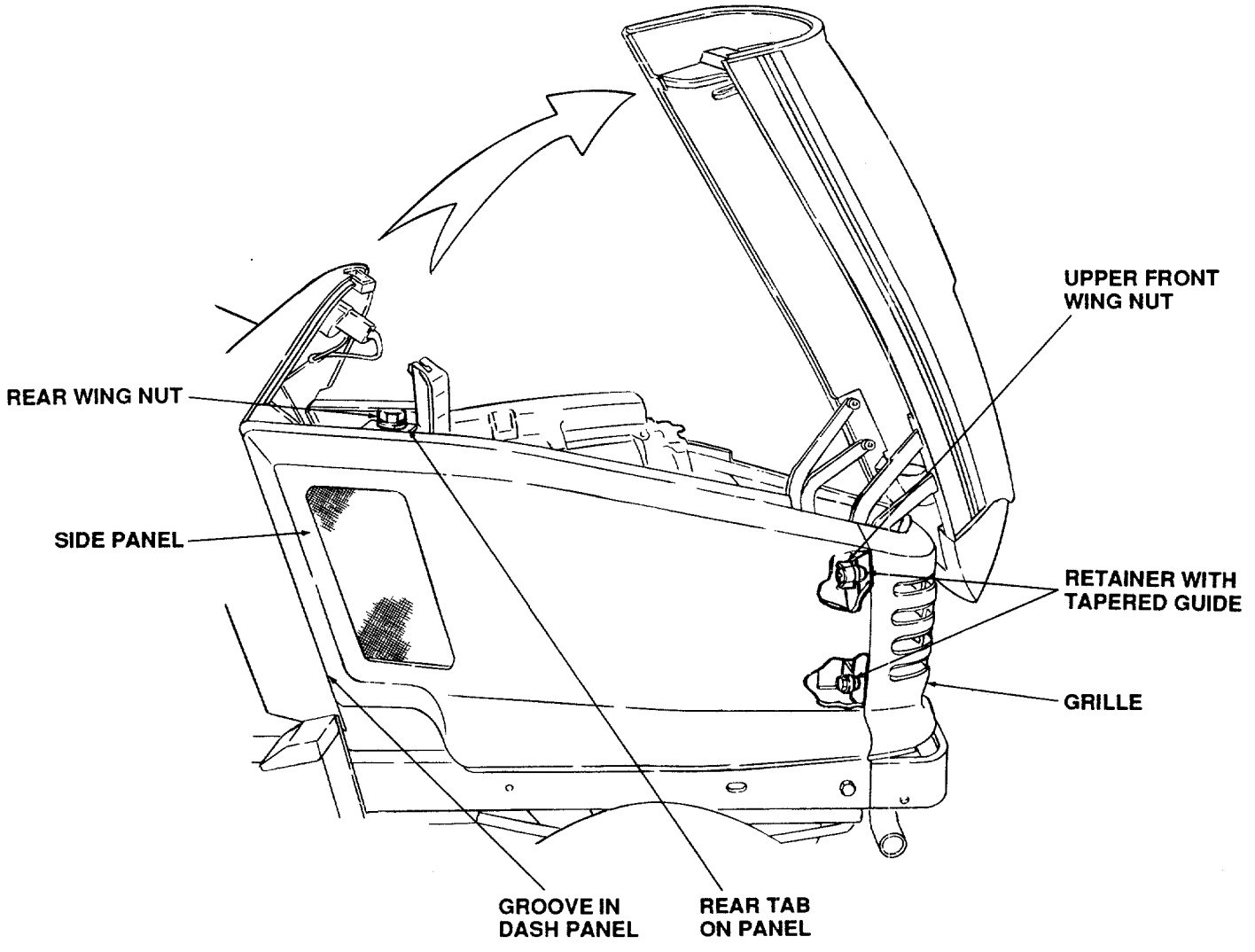

UPPER FRONT
WING NUT
REAR WING NUT
SIDE PANEL
RETAINER WITH
TAPERED GUIDE
GRILLE
GROOVE IN
DASH PANEL
REAR TAB
ON PANEL

Figure 8

SECTION II. OPERATION

WARNING

RECEIVE INSTRUCTION - Read operator's manual. Learn to operate this machine SAFELY. Don't risk INJURY or DEATH.

1. Before starting engine or operation: Be familiar with controls. The operator must be seated with the speed/cruise control lever in the full rearward position, the PTO switch in the "OFF" position and the brake pedal depressed.
2. Keep shields in place. Keep away from moving parts.
3. NO RIDERS! Keep all people and pets a safe distance away. Look before backing up.
4. Don't point mower discharge at people.
5. Avoid slopes. Tractors can be rolled over.
6. Before leaving operator's seat: Shut off PTO. Place speed/cruise control lever in full rearward position. Engage brake pedal lock. Shut off engine. Remove ignition key. Wait for all movement to stop before servicing or cleaning.
7. Do not fill gasoline tank when engine is running or while engine is hot. Tighten cap securely.

BEFORE OPERATING YOUR TRACTOR

1. Before you operate the tractor study this manual carefully. It has been prepared to help you operate and maintain your tractor with utmost efficiency.
2. Familiarize yourself with the operation of all the instruments and controls.
3. This engine is certified to operate on unleaded gasoline. Fill the fuel tank with only clean, fresh, unleaded gasoline with a minimum of 85 octane. Do not mix oil with gasoline. Purchase fuel in quantity that can be used within 30 days to assure fuel freshness.

   In countries other than U.S.A., leaded gasoline may be used if it is commercially available and unleaded is unavailable.

NOTE

Some fuels, called oxygenated or reformulated gasolines, are gasoline blended with alcohols or ethers. Excessive amounts of these blends can damage the fuel system or cause performance problems. Do not use gasoline which contains Methanol. If any undesirable operating symptoms occur, use gasoline with a lower percentage of alcohol or ether.

4. Check the engine and transmission oil levels.
5. Clean the air cleaner element if necessary.
6. Check the tire inflation pressures.
7. Adjust the seat for operator's maximum comfort, visibility and complete control of the tractor.
8. Remove the side panels and clean any accumulated grass and debris from the engine inlet air screen. Also clean the dash air intake screen, grille and side panels to ensure adequate cooling.
9. Refer to various sections of the Owner's Manual for additional information.

STARTING THE ENGINE

WARNING

Do not operate tractor if the interlock system is malfunctioning. It is a safety device designed for protection of the operator.

WARNING

Operator must be seated before starting the tractor.

NOTE

This unit is equipped with a safety interlock system for the protection of the operator.

The safety interlock system prevents the engine from cranking or starting unless the operator is seated, the brake pedal is

depressed and the PTO clutch engagement switch is in the "OFF" position.

The safety interlock system will automatically shut off the engine if the operator leaves the seat before engaging the brake pedal lock.

NOTE

The safety interlock system will automatically disengage the PTO if the reverse control pedal is pressed down with the PTO in the "RUN" position. To reengage the PTO, release the reverse control pedal, move the PTO switch into the "OFF" position and then engage the PTO while seated.

NOTE

The safety interlock system will automatically shut off the tractor engine if the operator leaves the seat with the PTO in the "RUN" position.

1. Operator must be seated.
2. Pull choke control knob to full choke position. Less choking may be necessary due to variations in temperature, grade of fuel, etc. Little or no choking will be needed when the engine is warm.
3. Place the throttle midway between the "SLOW" and "FAST" position.
4. Place the PTO switch in the "OFF" position.
5. Place the speed/cruise control lever in the full rearward position.
6. Fully depress the brake pedal.
7. Turn the ignition key clockwise to the "START" position and release it as soon as the engine starts; however, do not operate the starter for more than 10 seconds at any one time. If the engine does not start within this time, turn the key "OFF" and wait a few minutes, then try again.
8. After the engine starts, slowly release the brake pedal and gradually push the choke control knob all the way in. Do not use the choke to enrich the fuel mixture, except as necessary to start the engine.

NOTE

This engine is designed for maximum performance and life if operated with the choke fully open and throttle in the "FAST" position. To open the choke fully requires an engine warmup period of several seconds to several minutes, depending on the temperature.

After starting engine, push choke control until the engine just begins to run smoothly. Then keep pushing choke control in small steps, allowing the engine to accept small changes in speed and load, until the choke is fully open. During engine warmup, the equipment can be operated.

STOPPING THE ENGINE

CAUTION

Remove the key to prevent accidental starting and battery discharge if equipment is left unattended.

Place the PTO switch in the "OFF" position. Move the throttle lever to the "SLOW" position and allow the engine to idle for a short time before stopping. Then turn the key to the "OFF" position. Remove key from ignition switch.

TRACTOR BREAK-IN PROCEDURE

CAUTION

Never operate a new engine immediately under full load. Break it in carefully as shown in the table below.

Period	Engine Throttle Control Lever Position			Load
	½	¾	Full	
1st hour		X		None
2 hour	X		X	Light drawbar load or Mowing with tractor at slow speed
3rd through 13th hour		X	X	Medium drawbar load or Normal mowing

COLD WEATHER STARTING

WARNING

During operation do not run the engine in confined area such as storage building any longer than is necessary. Immediately move the tractor outside into the air.

WARNING

Operator must be seated before starting the tractor.

NOTE

In cold weather the starting motor may disengage prematurely. This is caused by the engine firing once but failing to continue running. If this happens several times, the engine will be flooded and it will be necessary to leave the throttle in the "SLOW" position but push the choke in all the way; then turn the ignition key to the "START" position and slowly pull the choke out to the position which will cause the engine to start and continue running. If the engine falters after putting tractor into motion, pull the choke out part way until the engine runs smoothly, then gradually push the choke back in as the engine warms.

Engine starting is possible in cold weather providing the correct weight of engine oil is used, the battery is fully charged and the proper starting procedure is followed. The best procedure for starting at temperatures near or below freezing are as follows:

1. Operator must be seated.
2. Pull the choke all the way out into the full choke position.
3. Move the throttle lever midway between the "SLOW" and "FAST" position.
4. Place the PTO switch in the "OFF" position.
5. Place the speed/cruise control lever in the full rearward position.
6. Fully depress the brake pedal.
7. Move the key switch into the "START" position and hold until the engine starts; however, do not operate the starter for more than 10 seconds at any one time. As soon as the engine starts, slowly push the choke in part way.

DRIVING THE TRACTOR (2160 only)

CAUTION

Avoid sudden starts, excessive speed and sudden stops.

CAUTION

Do not leave the seat of the tractor without disengaging the PTO, depressing the brake pedal and engaging the brake pedal lock. If leaving the tractor unattended, also turn the ignition key off and remove the key.

NOTE

When using power take-off operated equipment, best performance is achieved with the throttle lever in the "FAST" position.

1. Depress the brake pedal to release the brake pedal lock and let the pedal up. Move the throttle lever to the position where the engine operates best for the load to be handled.

NOTE

When using front or rear mounted equipment refer to Equipment Owner's Manual for proper ground speed for this model.

2. Move the speed control lever slowly forward to desired speed.

NOTE

Whatever gear position speed control lever is placed in, the forward control pedal must **always** be fully depressed.

3. Start the tractor in forward motion by depressing the forward control pedal. Start the tractor in reverse motion by depressing the reverse control pedal.

CAUTION

Do not use the forward or reverse control pedal to change the direction of travel when the tractor is in motion. Use the brake pedal to bring the tractor to a complete stop before depressing either the forward or reverse control pedal.

4. To change the ground speed of the tractor while it is in motion, the forward or reverse control pedal must be released. The speed control lever can then be moved slowly to the desired speed. The appropriate direction control pedal (forward or reverse) can then be depressed to continue travel.

DRIVING THE TRACTOR (2165 only)

CAUTION

Avoid sudden starts, excessive speed and sudden stops.

CAUTION

Do not leave the seat of the tractor without disengaging the PTO, depressing the brake pedal and engaging the brake pedal lock. If leaving the tractor unattended, also turn the ignition key off and remove the key.

NOTE

When using power take-off operated equipment, best performance is achieved with the throttle lever in the "FAST" position.

1. Depress the brake pedal to release the brake pedal lock and let the pedal up. Move the throttle lever to the position where the engine operates best for the load to be handled.
2. Driving with forward or reverse pedals.

CAUTION

Do not use the forward or reverse control pedal to change the direction of travel when the tractor is in motion. Use the brake pedal to bring the tractor to a complete stop before depressing either the forward or reverse control pedal.

a. To move forward, slowly depress forward control pedal until desired speed is achieved.

b. To move in reverse, fully depress reverse control pedal.

3. Driving with cruise control lever.

NOTE

Cruise control can only be operated in a forward speed.

a. Slowly depress forward control pedal until desired speed is achieved.

b. Push cruise control lever forward to keep the forward control pedal in a locked position.

c. Remove foot from forward control pedal.

d. Decrease speed by pulling lever rearward.

e. To stop pull lever all the way rearward or depress brake pedal completely.

f. To engage reverse direction when operating with cruise control, stop tractor and depress reverse control pedal.

DRIVING ON SLOPES

Refer to **SLOPE GAUGE** on page 47 in order to help determine slopes where you may not operate safely.

WARNING

Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A tractor could overturn and cause serious injury.

WARNING

Operate tractor up and down slopes, never across slopes.

CAUTION

Always drive up or down the face of a slope. Do not drive so that the tractor may tip over sideways.

Before operating the tractor on any slope, walk the slope to look for possible hazards such as rocks, mounds, ruts, stumps or other surface irregularities which could cause an upset.

Back the tractor with implement up the steepest portion of each slope you intend to work. If the tractor cannot negotiate the slope in reverse, the slope is too steep to be worked.

Avoid turns when driving on a slope. If a turn must be made, turn down the slope. Turning up a slope greatly increases the chance of a roll over.

Avoid stopping when driving up a slope. If it is necessary to stop while driving up a slope, start up smoothly and carefully to reduce the possibility of flipping the tractor over backward.

STOPPING THE TRACTOR

CAUTION

Always engage brake pedal lock, push the PTO switch to the "OFF" position, lower equipment and shut off engine before dismounting. Never try to start engine from ground.

Fully depress the brake pedal. When tractor has stopped, make sure the speed/cruise control lever is in the full rearward position. Before dismounting always disengage the PTO, engage the brake pedal lock, turn the ignition "OFF" and remove key from ignition switch.

DRAWBAR

Drawbar equipment must be hitched to the tractor only at the hitch hole in the drawbar. (See Figure 9.)

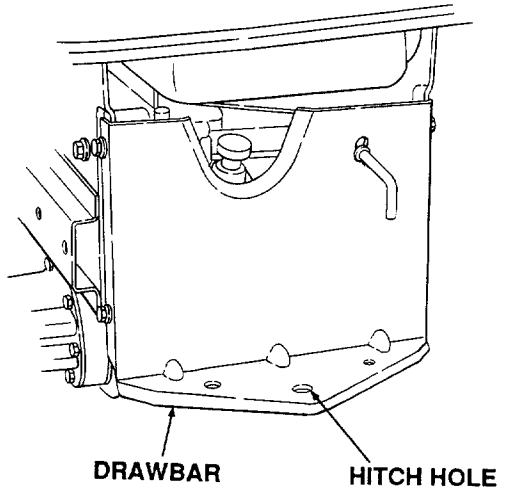


Figure 9

OPERATING THE POWER TAKE-OFF (PTO) CLUTCH

NOTE

Be certain to follow break-in instructions listed below.

1. Move the throttle lever back to the medium or "SLOW" position.
2. Pull the PTO switch to the "RUN" position.
3. Advance throttle to operating speed (full speed).
4. The operator must remain in tractor seat at all times. If operator should leave tractor seat without turning off the power take-off switch, the tractor engine will automatically shut off.
5. PTO switch must be in the "OFF" position when the reverse control pedal is depressed or the PTO will shut off automatically. To reengage the PTO, release the reverse control pedal. Push the PTO switch to "OFF" position. Pull the PTO switch to the "RUN" position.

FRONT PTO CLUTCH BREAK-IN PROCEDURE

To break in the components and increase the life of the clutch assembly, proceed as follows.

1. Attach mowing deck, snow thrower, etc. to the tractor.
2. Adjust the belt tension as recommended in attachment owner's manual.
3. Run at 50% throttle.
4. Engage and disengage the PTO five times without any load (not cutting grass, not blowing snow, etc.). Ten seconds on/ten seconds off.
5. Increase to 75% throttle.
6. Engage and disengage the PTO five times without any load (not cutting grass, not blowing snow etc.). Ten seconds on/ten seconds off.

SECTION III. ADJUSTMENTS

ADJUSTING THE SEAT

WARNING

Do not adjust the seat when the tractor is moving. Adjusting the seat while the tractor is moving could cause the operator to lose control of the tractor.

Before starting the tractor, adjust the seat forward or rearward to the most comfortable driving position. To reposition the seat, move the seat adjustment lever (Figure 10) upward and slide the seat forward or rearward. Release the adjustment lever when seat is comfortably positioned. Gently rock the seat forward and rearward once to be sure seat is locked in place.

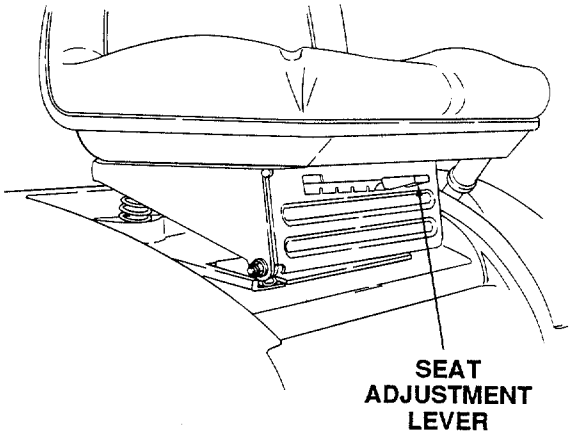


Figure 10

ADJUSTING THE POWER TAKE-OFF CLUTCH

WARNING

To avoid possible injury, move control lever into neutral, engage the brake lock and turn the ignition "OFF" before working on the machine.

WARNING

The clutch may be hot. Allow the engine and clutch to cool before adjusting the clutch.

The clutch is factory adjusted and should not require further adjustment under normal operating conditions. However, if the clutch fails to operate properly, check as follows:

Using a feeler gauge, check the air gap. (See Figure 11.) Insert feeler gauge into one of three access slots located around the outside of the brake plate. The air gap should be .012 inch. Adjust the self-locking nuts to obtain the proper clearance. Repeat the operation in all three access slots.

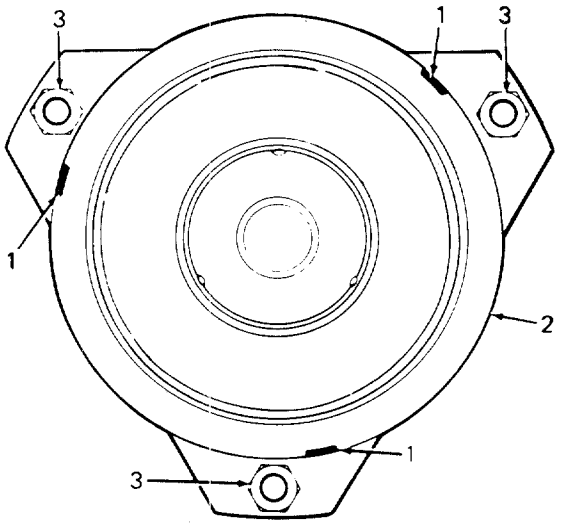


Figure 11

1. **Access Slots**
2. **Brake Plate**
3. **Self-Locking Nuts**

ADJUSTING THE BRAKES

During normal operation of this tractor, the brakes are subject to wear and will need periodic examination and adjustment.

To check brake adjustment, position tractor on a level surface, then place the speed/cruise control lever in the full rearward (neutral) position. Stop tractor engine and remove ignition key. On Model 2165 only, place the transmission release lever in the "TRANSMISSION RELEASED" position. Perform the following checks:

1. Engage the brake pedal lock. If the tractor can be pushed forward or rearward, the brake force must be increased.
2. Release the brake pedal lock. If the tractor cannot be pushed forward or rearward, the brake force must be decreased.

Refer to the following instructions to increase or decrease brake force.

To increase the brake force, refer to Figure 12 and proceed as follows:

1. Place the tractor on a level surface with the brake pedal lock disengaged. Stop tractor engine and remove ignition key.
2. While working from the underside of the tractor, remove the hairpin cotter from the brake rod adjustment ferrule. Remove ferrule from brake cam.
3. Turn the ferrule clockwise (inward) one full turn at a time until the ferrule can be inserted in the brake cam as **minimum** spring tension is applied.
4. Turn the ferrule counterclockwise (outward) one full turn to release the slight spring tension, then install ferrule in brake cam. Insert the hairpin cotter in the hole of the adjustment ferrule.

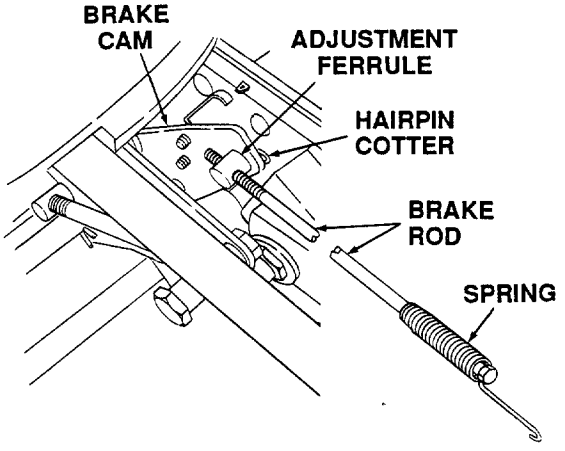


Figure 12

Recheck the brake adjustment to ensure proper brake operation before operating the tractor. If the tractor can still be pushed with the brake pedal locked (and transmission released on Model 2165 only), see your authorized *Cub Cadet* dealer.

To decrease the brake force, refer to Figure 12 and proceed as follows:

1. Place the tractor on a level surface, with the brake pedal lock disengaged. Stop the tractor engine and remove the ignition key.
2. While working from the underside of the tractor, remove the hairpin cotter from the brake rod adjustment ferrule. Remove ferrule from brake cam.
3. Turn the ferrule counterclockwise (outward) one full turn at a time until the ferrule can be inserted in the brake cam as **minimum** spring tension is applied.
4. Turn the ferrule counterclockwise (outward) one full turn to release the slight spring tension, then install ferrule in brake cam. Insert the hairpin cotter in the hole of the adjustment ferrule.

Recheck the brake adjustment to ensure proper brake operation before operating the tractor. If the tractor still cannot be pushed with the brake pedal lock released (and the transmission released on Model 2165 only), see your authorized *Cub Cadet* dealer.

WHEEL ALIGNMENT

The front wheels should toe-in approximately 1/8 inch.

Measure the distances A and B on the front wheels. (See Figure 13.)

NOTE

Dimension B should be approximately 1/8 inch less than dimension A.

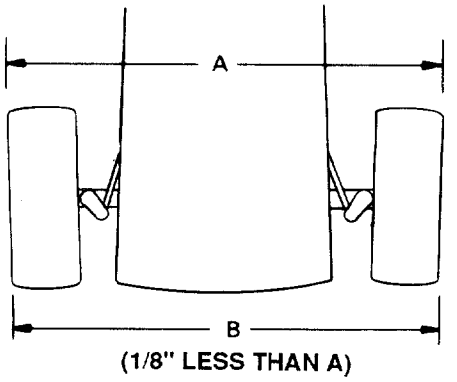


Figure 13

FRONT WHEEL ADJUSTMENT

To adjust the toe-in, remove one ball joint, loosen the lock nut at the ball joint and turn the tie rod ball joint in or out as required. Once the required toe-in is achieved, tighten lock nut at the ball joint, then reattach ball joint. (See Figure 14.)

PIVOT BAR ADJUSTMENT

CAUTION

The tractor must be checked every 50 hours of tractor operation for play between the tractor frame front channel and the pivot bar. If binding or excessive play is discovered, the pivot bar adjustment bolts must be adjusted.

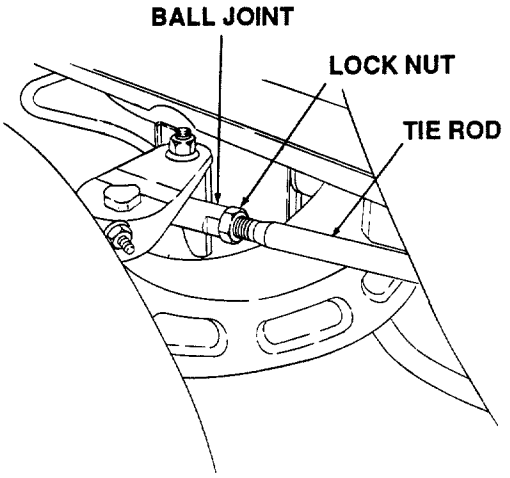


Figure 14

If binding or excessive play is discovered between the tractor frame front channel and the pivot bar, adjust both pivot bar adjustment bolts as follows: (See Figure 15.)

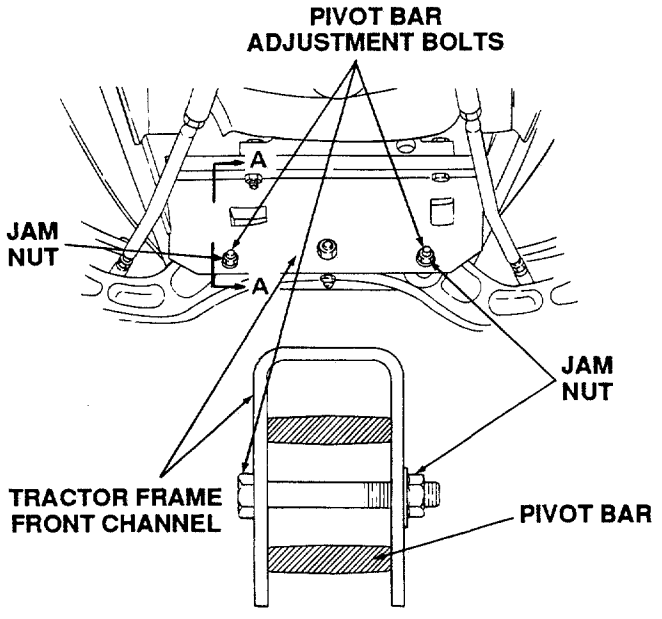


Figure 15

1. Raise the front of the tractor and set it on jack stands, so the front wheels and tires are suspended above the surface, below.

CAUTION

For safety, block the rear wheels to prevent rolling if the jack stands should slip or slide.

2. Raise and lower a front wheel and tire to check for binding of pivot bar. If binding is discovered, slightly loosen jam nuts, one at a time, until binding is alleviated.
3. Move both front wheels and tires forward and backward to check for excessive play between tractor frame front channel and pivot bar. If excessive play is discovered, slightly tighten jam nut on the side(s) exhibiting excessive play until excessive play is alleviated without binding.
4. Repeat steps 2 and 3 (above) until minimum play without binding is achieved.
5. Raise the front of the tractor, remove the jack stands, then lower the tractor. Remove the blocks from the rear wheels.

HYDROSTATIC NEUTRAL ADJUSTMENT (Model 2165 Tractor only)

The following adjustment may be necessary for the hydrostatic adjustment rod if Model 2165 tractor creeps forward or rearward without pressing down on either forward or reverse control pedal.

To check the hydrostatic neutral adjustment, proceed as follows:

1. Operate tractor (in gear and moving) for 10 minutes to warm up hydrostatic pump.
2. Place tractor on a level surface with the brake pedal lock disengaged. Stop tractor engine.
3. Raise the rear of tractor and set it on jack stands, so rear wheels and tires are suspended above the surface, below, and are free to rotate.

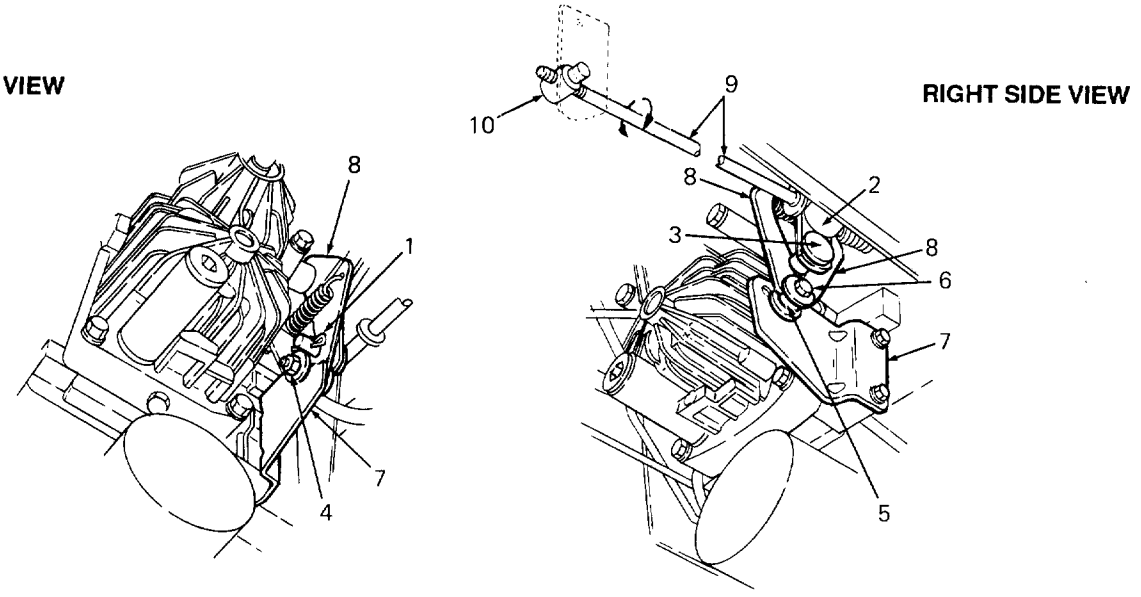
CAUTION

For safety, block the front wheels to prevent rolling if the jack stands should slip or slide.

4. Start tractor engine and place cruise control lever in the full rearward position.

If rear wheel rotation is observed, the hydrostatic adjustment rod must be adjusted. While working from the underside of the tractor, refer to Figure 16 and proceed as follows:

1. Remove the hairpin cotter holding the pivot sleeve to the trunnion arm of the hydrostatic pump. Remove pivot sleeve from trunnion arm so hydrostatic adjustment rod is disconnected from trunnion arm.



1. **Hairpin Cotter**
2. **Pivot Sleeve**
3. **Trunnion Arm**
4. **Locknut**
5. **Centering Gauge Spacer**
6. **Screw**
7. **Neutral Hydro Bracket**
8. **Neutral Arm**
9. **Hydrostatic Adjustment Rod**
10. **Ferrule**

Figure 16

2. Loosen the locknut securing the centering gauge spacer and screw to the neutral hydro bracket of the hydrostatic pump.
3. Pivot the neutral arm *slightly* forward or rearward while observing the rotation of the rear wheels. Proper adjustment is achieved when rear wheels do not rotate.
4. Tighten locknut to secure the centering gauge spacer and screw to the neutral hydro bracket of hydrostatic pump.
5. Stop tractor engine and engage the brake pedal lock.

NOTE

The brake pedal lock MUST be engaged for proper alignment during final adjustment.

6. Turn hydrostatic adjustment rod clockwise or counterclockwise slightly into or out of the forward adjustment ferrule until the pivot sleeve *loosely* engages the hole in the trunnion arm.
7. With pivot sleeve fully inserted into the hole of the trunnion arm, insert the hairpin cotter into the hole of pivot sleeve.
8. Start tractor engine and disengage brake pedal lock.
9. Observe that the rear wheels do not rotate, indicating proper hydrostatic neutral adjustment, before operating the tractor.
10. Stop tractor engine.
11. Raise the rear of the tractor, remove the jack stands and lower the tractor. Remove the blocks from the front wheels.

ADJUSTING LIFT ASSIST SPRING TENSION

The effort required to operate the implement lift handle can be varied by loosening or tightening the lift assist spring adjusting bolt. (See Figure 17.) Turning adjusting bolt clockwise will decrease the manual effort required for lifting attachments; turning counterclockwise will increase the effort required.

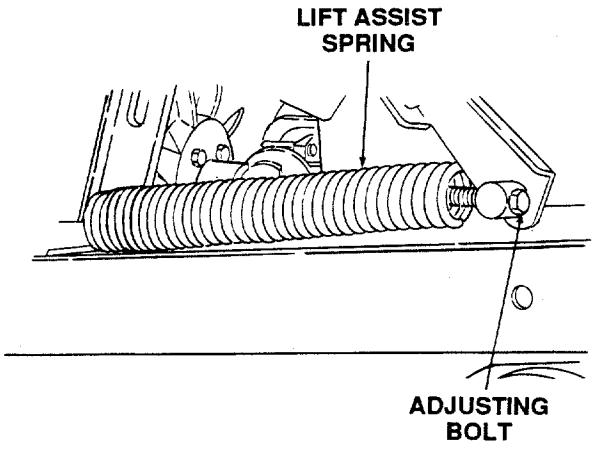


Figure 17

CARBURETOR ADJUSTMENTS

WARNING

If any adjustments are made to the engine while the engine is running (e.g., carburetor), disengage all clutches and blades. Keep clear of all moving parts and be careful of heated surfaces and muffler.

WARNING

To avoid injury or an accident, engage brake pedal lock, place speed/cruise control lever in full rearward (neutral) position and make sure equipment is disengaged before starting engine to make carburetor adjustments.

WARNING

Carbon monoxide fumes can be fatal! Do not make any adjustments to the carburetor in a confined area such as a storage building. Move the tractor outside into the air.

NOTE

Carburetor adjustments should be made only after the engine has warmed up.

The carburetor is adjusted at the factory and under normal operating conditions it will not require readjusting. However, if the engine does not operate properly, what may appear to be a faulty carburetor adjustment is in many cases a clogged air filter. This possibility should be ruled out before attempting to readjust carburetor. Refer to **MAINTENANCE** section in this manual.

If, however, the engine is hard-starting or runs roughly or stalls at low idle speed, it may be necessary to adjust or service the carburetor.

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude or load. Air cleaner and air cleaner cover must be assembled to carburetor before starting engine.

Adjust carburetor fuel mixture as follows:

The carburetor on this engine is low emission. It is equipped with an idle mixture valve with a limiter (see Figure 18), which allows some adjustment, and an idle speed adjustment screw.

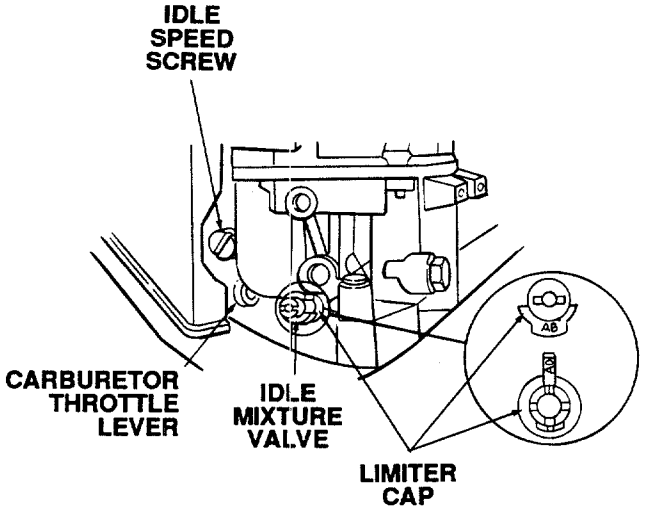


Figure 18

Start engine and warm up approximately 5 minutes before adjusting. With engine running, place throttle control in "SLOW" position. Rotate carburetor throttle lever against the idle speed screw and hold it. See Figure 18. Turn idle speed screw to obtain 1300 to 1500 RPM. While still holding carburetor throttle lever against idle speed screw, turn idle mixture valve with limiter cap screw midway between limits.

Readjust idle speed to 1200 RPM. Release carburetor throttle lever. Move throttle control to "FAST" position. Engine should accelerate smoothly. If it does not, readjust idle mixture valve slightly counterclockwise. DO NOT remove limiter cap. DO NOT force beyond limit.

NOTE

Engines operated at approximately 3000 to 5000 feet (900 to 1500 meters) above sea level may require a high altitude carburetor main jet. If erratic performance is observed, contact your Authorized Engine Dealer for a high altitude carburetor main jet.

Control Adjustments

To adjust choke control, remove air cleaner. Move choke control to full choke position. Carburetor choke should be completely closed. See Figure 19. If not, loosen casing clamp screw. Move casing, wire and engine choke lever in direction shown until choke is **completely closed.** Tighten casing clamp screw. Replace air cleaner.

To adjust throttle control, remove air cleaner. Move throttle control to "FAST" position. Swivel should be against throttle stop. See Figure 20. If not, loosen casing clamp screw. Move casing and wire in direction shown by arrow until swivel is against throttle stop. Tighten casing clamp screw. Replace air cleaner.

The adjustable governor control was set at the factory. If adjustment is required, consult your Authorized *Cub Cadet* Service Dealer.

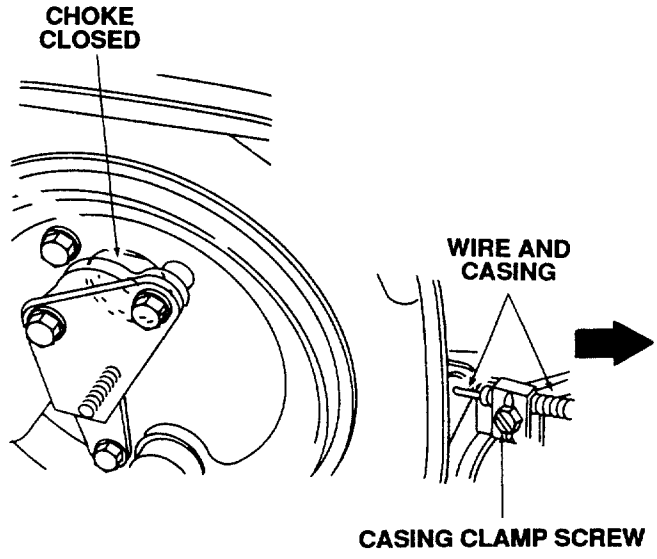


Figure 19

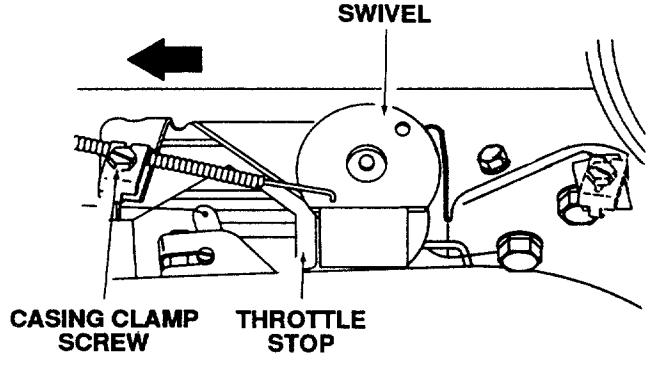


Figure 20

SECTION IV. MAINTENANCE

ENGINE OIL

The engine-crankcase is filled with ship-away oil. This oil may be used for the first 5 hours of engine operation at temperatures between 0° and 90°F. If temperatures are not within this range, drain the oil from the oil filter and crankcase and replace with new oil as specified in the **LUBRICATION TABLE.** The engine oil must be drained and replaced with new oil after 5 hours of engine operation and then after every 50 hours.

To aid starting, the selection of crankcase lubricating oils should be based on the lowest anticipated temperatures until the next drain period.

Cub Cadet Engine Oil meeting API Service Classification SG or SH is recommended. For maximum engine life select API SG or SH oils with lowest levels of barium, calcium or magnesium additives and minimum ash content (approximately 0.5%). Lubricant suppliers will normally furnish this information on their engine oils.

For oil change intervals of 50 hours the following oils are recommended.

Ambient Temperature	**Viscosity (Grade SG/SH)**
+40°F and above —	*Cub Cadet* Engine Oil S.A.E. 30
0° to +40°F —	*Cub Cadet* Engine Oil S.A.E. 5W30 or S.A.E. 10W30 Optional: Synthetic Engine Oil S.A.E. 5W20 or S.A.E. 5W30
0°F and below —	Synthetic Engine Oil S.A.E. 5W20 or S.A.E. 5W30 only

Regularly check the oil level of the engine crankcase to see that it is filled to the correct level. Always keep the oil level between the "FULL" and the "ADD" marks on the dipstick. When checking the oil level, **engine must be cold,** the dipstick must be withdrawn and wiped clean, then inserted and screwed into the tube all the way and withdrawn for a true reading.

NOTE

Check the oil level only while the engine is stopped and tractor is level.

CAUTION

The oil level should be checked every hour during the first 5 hours of operation.

NOTE

The engine oil level should be checked prior to every use.

CHECKING OIL LEVEL

Before each use, the oil level of the engine crankcase should be checked to see that it is filled to correct level. Close monitoring of the oil level during the first 10 hours of operation of the engine is especially important. Before checking the oil level, clean the area around the oil level dipstick to prevent debris from entering the crankcase. Always keep the oil level between the "FULL" and the "ADD" marks on the dipstick. (See Figure 21.) When checking the oil level, engine must be cold, the dipstick must be withdrawn and wiped clean, then inserted and screwed into the tube all the way and withdrawn for a true reading.

NOTE

Check the oil level only while the engine is stopped and tractor is level.

CAUTION

The oil level should be checked every hour during the first 5 hours of operation.

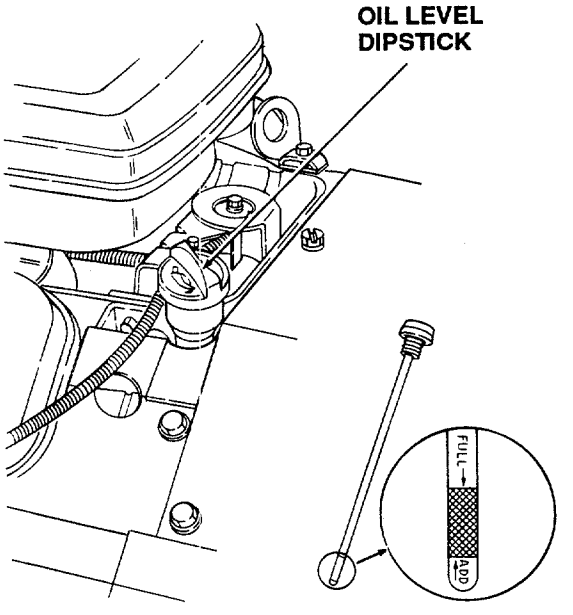


Figure 21

NOTE

The engine oil level should be checked prior to every use.

ADDING OIL

CAUTION

Never overfill the engine crankcase. Engine may overheat and/or damage may result if the crankcase is below the "ADD" mark or over the "FULL" mark of the dipstick.

NOTE

For best results, fill to "FULL" mark on dipstick as opposed to adding a given quantity of oil. Always check level on dipstick before adding more oil.

Refer to the **LUBRICATION TABLE** for information regarding the proper type of oil to add to the crankcase.

1. Place the tractor on a level surface and engage the brake pedal lock. Stop tractor engine and remove ignition key.
2. Clean the area around the oil filler cap to prevent debris from entering the crankcase.
3. Remove the oil filler cap from left valve cover and SLOWLY pour in oil. Fill the crankcase until the oil level reaches the "FULL" mark on the dipstick. (Refer to Figure 22.)
4. Reinstall oil filler cap screwing it securely into the valve cover.

CAUTION

Oil filler cap MUST BE TIGHTENED SECURELY INTO COVER AT ALL TIMES WHEN ENGINE IS OPERATING.

DRAINING OIL AND REPLACING OIL FILTER

NOTE

The engine oil should be changed after the first 5 hours of operation. Then oil should be changed after every 50 hours of operation.

WARNING

If engine is hot, use caution not to burn yourself when removing side panels, draining oil from crankcase and changing oil filter.

NOTE

The oil filter should be changed at every oil change interval. The filters can be obtained through your *Cub Cadet* dealer under part number BS-492932.

Refer to the **MAINTENANCE CHART** and the **LUBRICATION TABLE** for information regarding the frequency of oil change and the quantity and type of oil needed. While the engine oil is warm, proceed as follows:

The oil filter is located behind the left side panel and is mounted on the engine. (See Figure 22.)

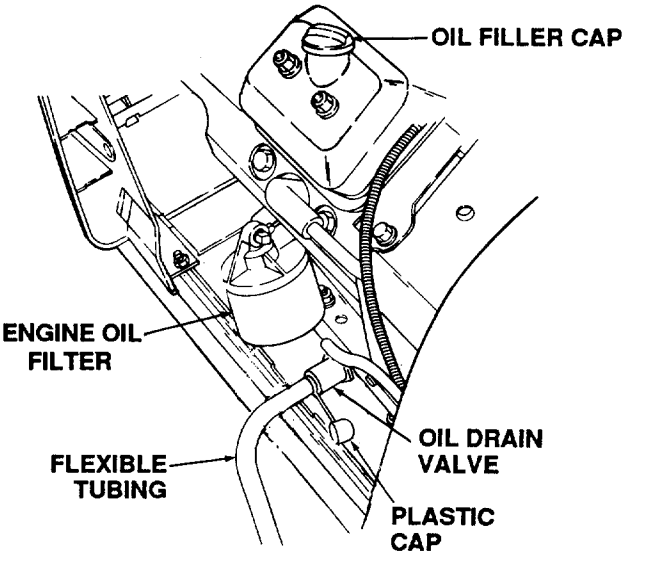


Figure 22

The oil filter is available from your *Cub Cadet* dealer as Part Number BS-492932.

NOTE

A 12 inch length of flexible tubing, used to drain engine oil, is supplied with the owner's manual package.

WARNING

Oil may be hot. Use care to avoid burns from hot oil.

1. Place the tractor on a level surface and engage the brake pedal lock. Stop tractor engine and remove ignition key.
2. Unseat the plastic dust cap from the engine oil drain valve. To prevent loss of the cap, do not remove the captive retaining ring from the drain valve. (Refer to Figure 22.)
3. Attach the flexible tubing (supplied with the manual package) to the drain valve. Place an appropriate container below the open end of the tubing to collect the old oil.
4. To open the drain valve, push it inward, turn counterclockwise until it stops, then pull it outward.
5. Clean around the base of the oil filter and remove the filter by turning it counterclockwise using an automotive type filter wrench to loosen.
6. Allow old oil to completely drain from the engine crankcase into the container below. To close the drain valve, push it inward, turn clockwise until it stops and then release it.
7. Remove the flexible tubing from the drain valve. Clean the tubing. Store in a safe place for future use.
8. Clean the drain valve. Replace the plastic dust cap onto the drain valve.
9. Apply a light coating of clean oil on the gasket of the new oil filter. Thread the filter on by hand until gasket seats in the oil filter adapter. Tighten filter an additional 1/2 to 3/4 turn.

Refer to **FILLING THE CRANKCASE** and **LUBRICATION TABLE** and refill the crankcase with the quantity and type of oil specified.

FILLING THE CRANKCASE

CAUTION

Never overfill the engine crankcase. Engine may overheat and/or damage may result if the crankcase is below the "ADD" mark or over the "FULL" mark of the dipstick.

NOTE

For best results, fill to "FULL" mark on dipstick as opposed to adding a given quantity of oil. Always check level on dipstick before adding more oil.

Refer to the **LUBRICATION TABLE** for information regarding the oil capacity and the proper type of oil to pour into the crankcase.

1. Place the tractor on a level surface and engage the brake pedal lock. Stop tractor engine and remove ignition key.
2. Clean the area around the oil filler cap to prevent debris from entering the crankcase.
3. Remove the oil filler cap from left valve cover and SLOWLY pour in oil. The oil capacity is approximately 3-1/2 pints. Fill the crankcase until the oil level reaches the "FULL" mark on the dipstick. (Refer to Figure 22.)
4. Reinstall oil filler cap screwing it securely into the valve cover.

CAUTION

Oil filler cap MUST BE TIGHTENED SECURELY INTO COVER AT ALL TIMES WHEN ENGINE IS OPERATING.

5. Start tractor engine and allow it to run for 30 seconds. After 30 seconds, stop engine and remove ignition key.
6. Check the oil level and add oil if necessary. DO NOT OVERFILL THE ENGINE CRANKCASE.
7. Check for leaks around the oil filter and at the drain valve.

CHECKING TRANSMISSION OIL LEVEL

NOTE

Check the oil level only while the engine is stopped and tractor is level.

Check the oil level of the transmission case before each use to see that it is filled to the correct level. Before checking the transmission oil level, clean the area around the oil fill plug/dipstick to prevent debris

from entering the transmission case. Always keep the oil level between the "FULL" and the "ADD" marks on the dipstick. (See Figure 23.) When checking the oil level, the dipstick must be withdrawn and wiped clean, then inserted all the way and withdrawn for a true reading.

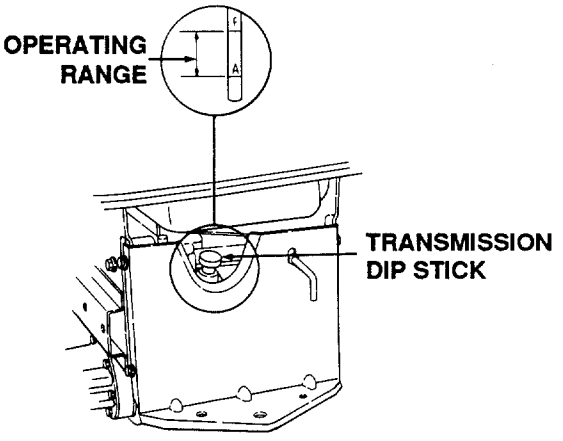


Figure 23

ADDING TRANSMISSION OIL

CAUTION

Never overfill the transmission case. Damage may result if the transmission case is below the "ADD" mark or over the "FULL" mark of the dipstick.

NOTE

For best results, fill to "FULL" mark on dipstick as opposed to adding a given quantity of oil. Always check level on dipstick before adding more oil.

Refer to the **LUBRICATION TABLE** for information regarding the proper type of oil to add to the transmission case.

1. Place the tractor on a level surface and engage the brake pedal lock. Stop tractor engine and remove ignition key.
2. Clean the area around the oil fill plug/dipstick to prevent debris from entering the transmission case.
3. Remove the oil fill plug/dipstick from oil fill port and SLOWLY pour oil into the oil fill port. Fill the transmission case until the oil level reaches the "FULL" mark on the dipstick. (Refer to Figure 23.)
4. Reinstall the oil fill plug/dipstick securely into the oil fill port.

CAUTION

Oil fill plug/dipstick MUST BE INSTALLED SECURELY INTO FILL PORT AT ALL TIMES WHEN ENGINE IS OPERATING.

HYDROSTATIC DRIVE OIL FILTER (MODEL 2165)

CAUTION

Never overfill the transmission case. Damage may result if the transmission case is below the "ADD" mark or over the "FULL" mark of the dipstick.

NOTE

For best results, fill to "FULL" mark on dipstick as opposed to adding a given quantity of oil. Always check level on dipstick before adding more oil.

Refer to the **MAINTENANCE CHART** for information regarding the frequency of the hydrostatic transmission oil filter replacement. The filter can be obtained through your *Cub Cadet* Dealer under Part Number 723-3014.

Refer to the **LUBRICATION TABLE** for information regarding the oil capacity and the proper type of oil to pour into the transmission case.

1. Place the tractor on a level surface and engage the brake pedal lock. Stop tractor engine and remove ignition key.
2. Clean the area around the transmission drain plug. Remove the drain plug and allow the transmission oil to drain into a clean container having a capacity of more than 6 quarts. Replace drain plug. (Refer to Figure 24.)

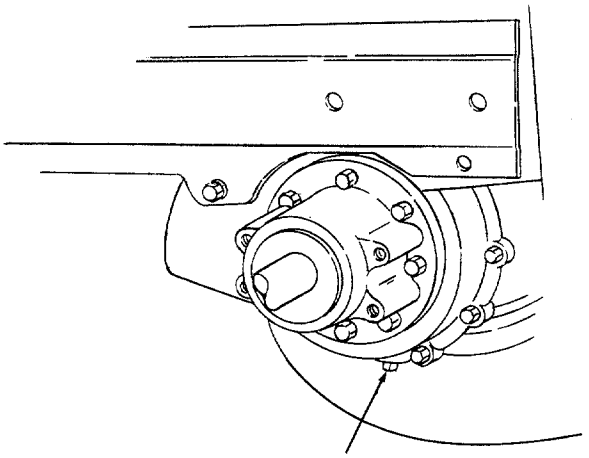


Figure 24

CAUTION

If transmission oil is to be reused, cover container holding drained oil to prevent contamination. Contaminated transmission oil can damage your unit.

3. Clean around the base of the transmission oil filter and remove the filter by turning it counterclockwise. (Refer to Figure 25.)

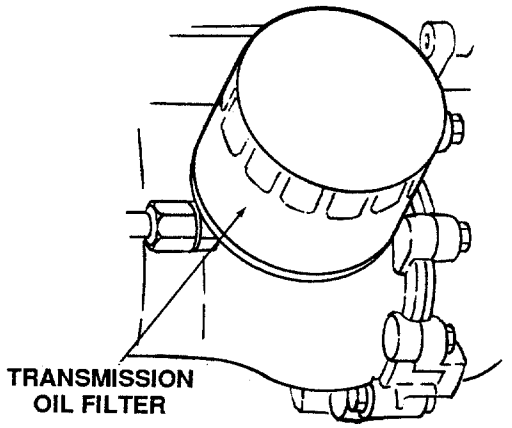


Figure 25

4. Apply a light coat of clean transmission oil to the gasket of the new filter. Install the filter by turning it clockwise, by hand, until the gasket contacts the base. Loosen the filter by turning it counterclockwise. Again install the filter by turning it clockwise until the gasket contacts the base. Tighten filter an additional 1/2 turn.
5. Clean the area around the transmission oil fill plug/dipstick to prevent debris from entering the transmission case.
6. Remove the oil fill plug/dipstick from oil fill port and SLOWLY pour oil into the oil fill port. Fill the transmission case until the oil level reaches the "FULL" mark on the dipstick. (Refer to Figure 23.)
7. Reinstall oil fill plug/dipstick securely into the oil fill port.
8. Start engine and allow it to run for a few minutes. Shut engine off and check for leaks; check oil level in transmission case.

CAUTION

Oil fill plug/dipstick MUST BE INSTALLED SECURELY INTO PORT AT ALL TIMES WHEN ENGINE IS OPERATING.

AIR CLEANER

Check the air cleaner daily or before starting the engine. Check for and remove any heavy buildup of dirt and debris, and loose or damaged components.

NOTE

Operating the engine with loose or damaged air cleaner components could allow unfiltered air into the engine causing premature wear and failure.

Service Precleaner

Wash and reoil the foam precleaner at 1-month intervals or after every 10 hours of operation (more often under extremely dusty or dirty conditions), whichever occurs first.

1. Unhook both clips from both sides of the air cleaner cover. Remove the air cleaner cover. (See Figure 26.)
2. Remove the foam precleaner by sliding it up off the paper element. (See Figure 26.)
3. Wash the precleaner in warm water with detergent. Rinse the precleaner thoroughly until all traces of detergent are eliminated. Squeeze out excess water in a dry cloth (do not wring). Allow the precleaner to air dry.
4. Saturate the foam precleaner with new engine oil. Squeeze out all excess oil in a dry cloth.

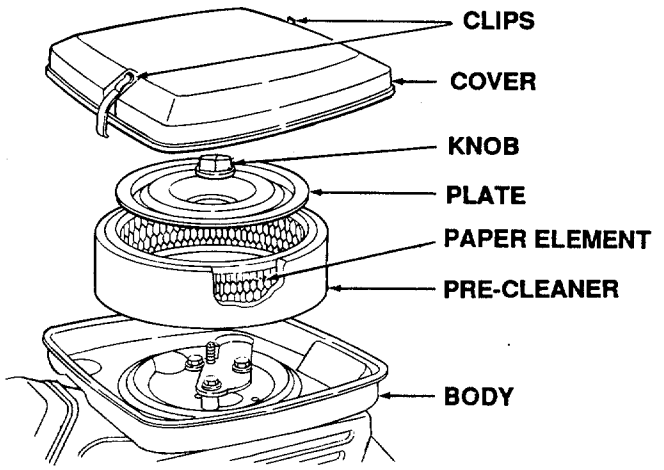


Figure 26

5. Reinstall the foam precleaner over the paper element.
6. Reinstall the air cleaner cover and reattach both clips to both sides of the air cleaner body.

Service Paper Element

Every 100 hours of operation (more often under extremely dusty or dirty conditions), check the paper element. Replace the element as necessary.

1. Unhook both clips from both sides of the air cleaner cover. Remove the air cleaner cover. (See Figure 26.)
2. Remove the foam precleaner by sliding it up off the paper element. (See Figure 26.)
3. Remove the knob and cover plate. Remove the paper air filter element.
4. Do not wash the paper element or use pressurized air, as this will damage the element. Replace a dirty, bent or damaged element. Handle new elements carefully; do not use if the sealing surfaces are bent or damaged.
5. When servicing the air cleaner, check the air cleaner body. Make sure it is secured and not bent or damaged. Also check the air cleaner cover for damage or improper fit. Replace all damaged air cleaner components.
6. Reinstall the paper element, foam precleaner, air cleaner cover and air cleaner cover clips. Make sure the clips are tightened securely.

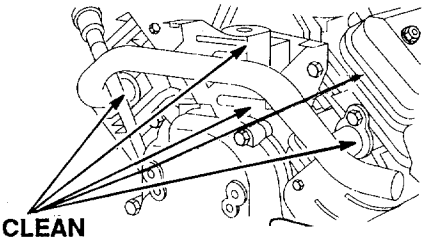
Properly cleaned and installed air cleaner elements significantly contribute to prolonged engine life.

CLEANING ENGINE

This tractor has an air-cooled engine. Air must be able to circulate freely around the engine, through the screen, shroud and over the fins of the cylinder head and cylinder block. Keep these areas free of accumulated dirt and trash or engine will overheat and result in damaged moving parts. Periodically clean the inside of the side panels, dash intake screen and grill to ensure adequate cooling. Do not clean with a forceful spray of water because water could contaminate fuel system. (See Figure 27.)

NOTE

This machine is designed to cool properly with the engine side panels in place. Operating the machine without panels in place may result in inadequate cooling.



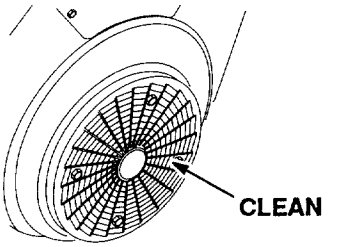


Figure 27

To assure smooth operation, keep governor linkage, springs and controls free of debris. (Refer to Figure 28.)

Keep muffler area clean and muffler in working order.

CAUTION

Daily or more often before running engine, clean muffler area to remove all grass and combustible debris.

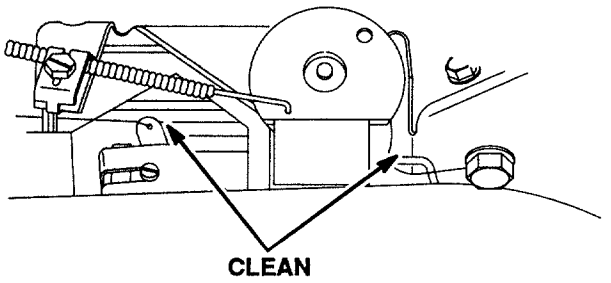


Figure 28

SPARK PLUG

WARNING

To avoid possible injury, be sure engine is off and cool before making any adjustment or repairs.

NOTE

Remove all dirt from around the spark plug before removing.

To remove spark plugs, always use a spark plug wrench. Check gap after every 100 hours of operation.

Replace a defective plug with a new plug. Set gap at 0.030 inch. (See Figure 29.) Tighten plug to 10-15 ft-lbs. See your authorized dealer for the correct replacement plug.

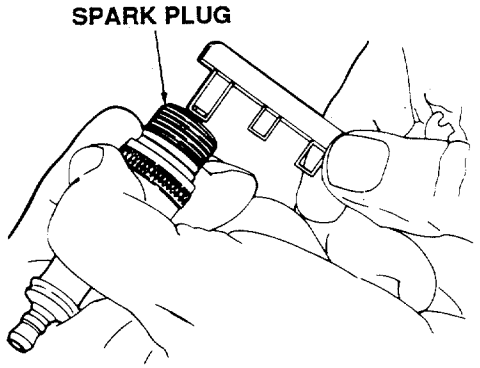


Figure 29

FUEL FILTER

WARNING

Do not replace the fuel filter when engine is hot.

The engine is equipped with an inline fuel filter. Visually inspect the filter periodically, and replace when dirty.

LIGHTS

Refer to **SPECIFICATIONS** when replacement of head lamp bulb is necessary.

WARNING

Do not change head lamp bulbs when hot or when engine is hot.

CAUTION

Do not touch glass portion of head lamp bulb. Touching glass portion will reduce life of head lamp bulb.

To replace a head lamp bulb, refer to Figure 30 and remove the socket from the housing by rotating socket 1/4 turn. Pull old bulb assembly from socket and insert new bulb assembly. Do not touch the glass portion of the head lamp bulb. Place socket into housing and turn to lock in place.

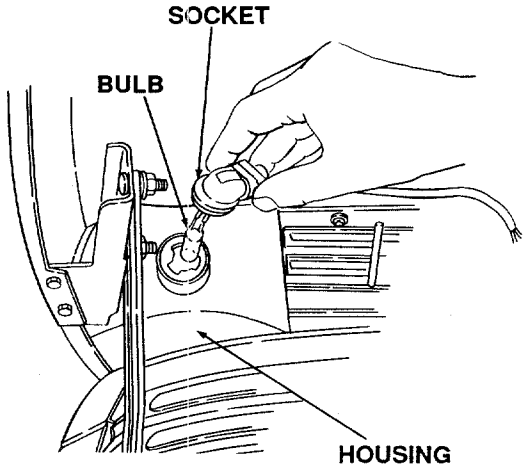


Figure 30

FUSE

Always use the same capacity fuse for replacement. Refer to **SPECIFICATIONS.** If electrical system malfunctions, check the fuse.

To replace a new fuse, pull the old fuse from the fuse housing and install a new fuse.

BATTERY INFORMATION

WARNING

A. Battery acid must be handled with great care as contact with it can burn and blister the skin. It is also advisable to wear protective clothing (goggles, rubber gloves and apron) when working with it.*

B. Should battery acid accidentally splatter into the eyes or onto the face, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.

C. If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.

D. Since battery acid is corrosive, do not pour it into any sink or drain. Before discarding empty electrolyte containers, rinse them with a neutralizing solution.

E. NEVER connect or disconnect charger clips to battery while charger is turned on as it can cause sparks.

F. Keep all lighted materials (cigarettes, matches, lighters) away from the battery as the hydrogen gas generated during charging can be combustible.

G. As a further precaution, only charge the battery in a well-ventilated area.

***Always shield eyes and protect skin and clothing when working near batteries.**

DANGER

BATTERIES CONTAIN SULFURIC ACID AND MAY CONTAIN EXPLOSIVE GASES (when electrolyte has been added).

KEEP BATTERIES OUT OF THE REACH OF CHILDREN.

MAINTENANCE OF BATTERY

1. Check electrolyte level periodically (at least every two weeks). Keep the level to the split rings. Use only distilled water or a good quality drinking water. Never add acid or any other chemicals to the battery after initial activation.
2. The battery should be checked with a hydrometer after every 25 hours of operation. If the specific gravity is less than 1.225, the battery should be recharged. Maximum charge rate is 5 amps.
3. Coat the terminals and exposed wire with a thin coat of grease or petroleum jelly for longer service and protection against corrosion.
4. The battery should be kept clean. Any deposits of acid should be neutralized with baking soda and water. Be careful not to get this solution in the cells.
5. Avoid tipping the battery. Even a "sealed" battery will leak electrolyte when tipped.

STORAGE OF THE BATTERY

1. When storing battery for extended periods, disconnect battery cables. Removing battery from unit is recommended.
2. Keep the exterior of the battery clean, especially the top. A dirty battery must be stored with a full charge. A dirty battery will discharge itself.
3. Check the battery with a hydrometer. The battery must be stored with a full charge. A discharged battery will freeze.

Specific Gravity	Freezing Point
1.265	–71°F
1.250	–62°F
1.200	–16°F
1.150	5°F
1.100	16°F

NOTE

All batteries discharge during storage.

4. Recharge battery whenever the specific gravity is less than 1.225, before returning to service or every two months, whichever comes first.

COMMON CAUSES FOR BATTERY FAILURE

1. Overcharging
2. Undercharging
3. Lack of water
4. Loose hold downs and/or corroded connections
5. Excessive loads
6. Battery electrolyte substitutes
7. Freezing of electrolyte

NOTE

These failures do not constitute warranty.

BATTERY REMOVAL OR INSTALLATION

WARNING

When removing the battery, follow this order of disassembly to prevent your wrench from shorting against the frame.

Battery removal:

1. Remove the Negative cable.
2. Remove the Positive cable.

Battery installation:

1. Attach the Positive cable.
2. Attach the Negative cable.

To replace the battery, proceed as follows:

1. Remove the Negative cable from the battery Negative terminal first. Remove the Positive cable from the battery Positive terminal.
2. Remove the wing nut securing the mounting rod to the bulkhead mounting bracket. (Refer to Figure 31.)

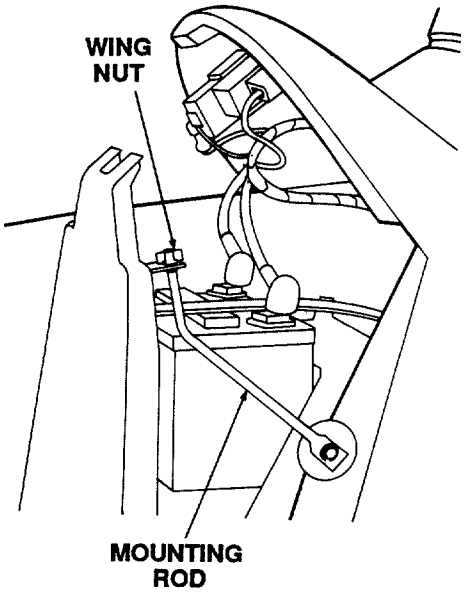


Figure 31

3. Rotate the mounting rod fully upward to provide necessary clearance for battery removal. (Refer to Figure 32.)

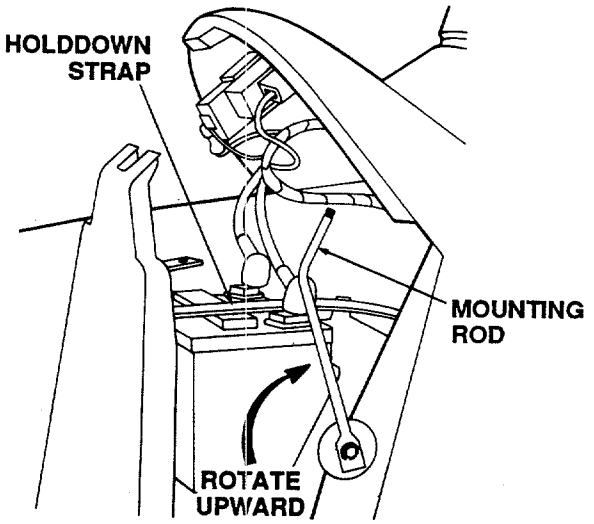


Figure 32

4. Remove the battery holddown strap.
5. Lift the battery upward and remove from the left side of the tractor.
6. Install the new battery from the left side of the tractor onto the battery tray.
7. Replace the battery holddown strap. (Refer to Figure 32.)
8. Rotate the mounting rod fully downward below the bulkhead mounting bracket. (Refer to Figure 31.)
9. Replace the wing nut to secure the mounting rod to the bulkhead mounting bracket.
10. Attach the Positive cable to the battery Positive terminal first. Attach the Negative cable to the battery Negative terminal.

JUMP STARTING

WARNING

Failure to use this starting procedure could cause sparking, and the gases in either battery could explode.

1. Attach the first jumper cable from the positive terminal of the good battery to the positive terminal of the dead battery.

2. Attach the second jumper cable from the negative terminal of the good battery to the FRAME OF THE UNIT WITH THE DEAD BATTERY.

TIRES

Keep the pneumatic tires properly inflated. Overinflation will cause operator discomfort. Underinflation will cause short tire life.

Inflate the front and rear tires as shown in the following table:

Tire Size	Pounds per Square Inch
Front Tires	
16 x 6.5-8	14
Rear Tires	
23 x 9.5-12	10

Always see that the tire valve caps are in place and tightened securely to prevent loss of air and protect the valve core and stem.

Do not overload the tractor tires by mounting equipment on the tractor which exceeds the load capacity of the size of the tires on the tractor.

MOUNTING TIRES ON THE RIM

WARNING

Do not mount a tire unless you have the proper equipment. Do not inflate tire above the recommended pressure. Do not stand in front of or over tire assembly when inflating. Explosive separation of tire and rim can cause injury or death.

After mounting a new or old tire on the rim, inflate it to 20 pounds pressure to seat the tire bead on the rim flange. Then deflate the tire to the correct operating pressure.

NOTE

After the first 10 hours of operation, check and retorque the wheel lug nuts (both sides) to 35 ft-lbs. to make sure they have seated properly.

SECTION V. OFF-SEASON STORAGE

If the machine is to be inoperative for a period longer than 30 days, the following procedures are recommended:

WARNING

Never store engine with fuel in tank indoors or in poorly ventilated enclosures, where fuel fumes may reach an open flame, spark or pilot light as on a furnace, water heater, clothes dryer, etc.

1. Remove all gasoline from fuel tank to prevent gum deposits from forming on these parts and causing possible malfunction of engine.

   Run engine until engine starts to falter, then use choke to continue engine operation until all fuel in tank and carburetor is exhausted. Remove fuel line at tank or carburetor and drain any remaining gasoline from system.

WARNING

Drain fuel into approved container outdoors, away from open flame.

Fuel left in engine during warm weather deteriorates and will cause serious starting problems.

2. Remove spark plugs and pour one (1) ounce of engine oil through spark plug hole into cylinder. Crank engine several times to distribute oil. Replace spark plugs.
3. Clean the engine and the entire tractor thoroughly.
4. Lubricate all lubrication points.
5. Follow battery storage instructions on page 32.
6. Protect tires and seat from sunlight. Inflate tires at regular intervals.

SECTION VI. MOWING

MOWING

WARNING

To avoid possible injury, do not allow anyone in the area opposite the discharge chute while mowing. Although the area has been supposedly cleared of foreign objects, small objects may be discharged by the mower.

WARNING

Never direct discharge of material toward bystanders or allow anyone near the machine while in operation.

For best results it is recommended that the first two laps should be cut with the discharge thrown towards the center. After the first two laps, reverse the direction to throw the discharge to the outside for the balance of cutting. This will give a better appearance to the lawn.

Do not cut the grass too short, as the mower will tend to scalp the grass. Short grass invites weed growth and yellows quickly in dry weather.

Mowing should be done with the engine at full throttle. Do not mow at high ground speed.

During certain times of the year and under some conditions, the mower may leave streaks of uncut material.

Streaking may occur when attempting to mow heavy weeds and tall grass. Under these conditions it may be necessary to go back over the cut area a second time to get a clean cut.

The following practices will help eliminate streaking:

1. Mow the area more often so the grass doesn't get too tall and heavy.
2. Operate the tractor at full throttle and lower forward speeds.
3. Keep the blades sharp and replace blades when worn.
4. Follow the mowing procedure shown in Figure 33.

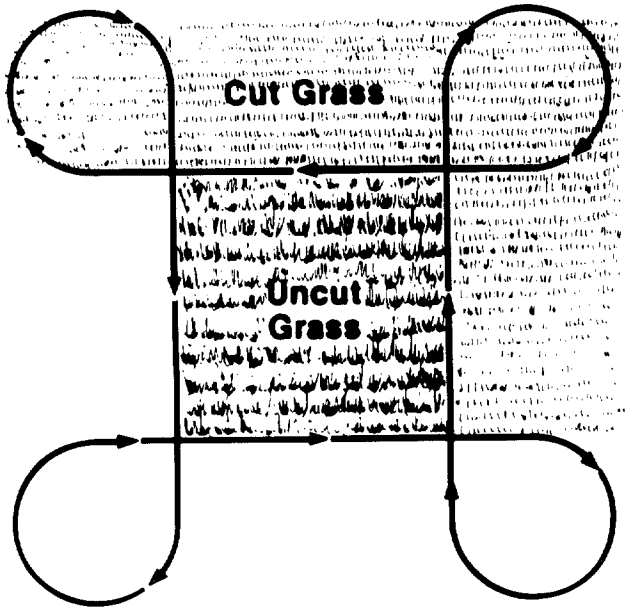


Figure 33

OPTIONAL EQUIPMENT AND ACCESSORIES

When you purchased your tractor, you probably had it completely equipped for your particular needs at the time. However, later you may wish to obtain optional equipment or accessories. These items and other allied equipment can be purchased from, and installed by, your authorized dealer.

The tractor is used for so many different types of work, and because it is called on to operate under so many different conditions, a variety of equipment is available to adapt it to the requirements of the user. **Refer to attachment guide for a complete description of equipment and required components that can be utilized with your tractor.**

MAINTENANCE CHART

Operation to be performed	Before each use	10 hours or once a month	30 hours three times a season	50 hours or twice a season	100 hours or yearly	Before storage
Clean grille, engine inlet air screen, dash intake screen and side panels		More often under dirty conditions X				
Check engine oil level	X					
Fill fuel tank	X					
Change engine oil & oil filter	After first 5 hours			More often under dirty conditions X		
Check transmission oil level	X					
Replace transmission oil filter (Model 2165 only)		After first 10 hours X		After first 50 hours X	Every 100 hours there-after	
Clean & reoil foam air precleaner		X				
Check battery electrolyte level		X				
Grease front axle pivot bolt		X				
Grease steering knuckles		X				
Retorque rear wheel lug nuts		After first 10 hours X				
Clean cooling fins & external surfaces			X			
Service air cleaner paper cartridge					More often under dirty conditions	
Check spark plugs					X	X
Steering gear housing			X			
Grease front wheel bearings			X			X
Drain fuel						X
Pivot bar adjustment bolts				X		
Lubricate all foot and lift control pivot points		X				

NOTE

Maintenance information for operational equipment may be found in the manual which is included with the specific piece of optional equipment.

TROUBLE SHOOTING

Possible Cause	Possible Remedy
HARD TO START	
No gasoline in fuel tank or carburetor	Fill the tank with gasoline. Check the fuel line, carburetor and fuel filter.
Fuel line or carburetor clogged	Clean the fuel line and carburetor with commercial carburetor cleaner.
Fuel filter plugged	Replace.
Water in gasoline	Drain the fuel tank and carburetor. Use new fuel and dry the spark plugs.
Choked improperly. Flooded engine	Follow the starting instructions.
Defective ignition or loose wiring	Check the wiring, spark plugs or fuse.
Defective battery	Check and service. Refer to **"BATTERY."**
Spark plug dirty or improper gap	Clean, adjust the gap to .030-inch or replace the plug.
ENGINE OPERATES IRREGULARLY OR KNOCKS	
Engine incorrectly timed	*
Spark plug dirty; wrong gap or wrong type	Clean, reset the gap or replace.
Poor or weak spark	Check the spark plugs and wiring.*
Carburetor setting incorrect	Adjust. Refer to **"ADJUSTMENTS"***
Poor grade fuel or water in fuel	Drain and use a good grade of clean fuel.
Engine overheating	Refer to **"MAINTENANCE."**
Engine valves at fault	*
Engine smokes	Adjust the carburetor.*
Oil level rises due to gasoline in crankcase	*
Air filter becomes oil and fuel soaked	*
Engine leaks oil	*
Misfiring	*
Other engine problems	*
Excessive oil in air cleaner	Be sure that oil dipstick is fully seated and all excess oil is squeezed out of pre-cleaner foam element.
PTO CLUTCH WILL NOT ENGAGE	
Low or zero voltage	Check battery. Charge or replace. Check charging system. Check for worn or broken wiring or connections. Check clutch coil resistance. Check switch.
Rotor/armature air gap too large	Rotor/armature worn. Adjust air gap.

***See your authorized dealer.**

TROUBLE SHOOTING

Possible Cause	Possible Remedy
LACK OF POWER	
Air cleaner clogged	Service the air cleaner element. Refer to **"MAINTENANCE."**
Engine overload	Reduce the load.
Engine overheated	Make sure air intake screen, shrouding, engine fins, side panels, dash intake screen and grille are free of accumulated dirt and trash. Refer to **"MAINTENANCE."**
Fuel tank air vent clogged	Open the vent in the cap.
Air leakage between carburetor and engine	Remove air cleaner. Tighten the carburetor and manifold mounting nuts. Replace as indicated in **"MAINTENANCE."**
Incorrect timing or faulty ignition	*
Brake drags	Adjust the brake. Refer to **"ADJUSTMENTS."**
Insufficient cool air, dirty air intake screen, shroud, cooling fins, side panels, dash intake screen or dirty grille	Keep the air intake area, side panels, grille, dash intake screen and cooling fins clean; refer to **"MAINTENANCE."**
Oil level incorrect	Engine oil level must not be over the "FULL" mark or below the "LOW" mark. Refer to **"MAINTENANCE."**

***See your authorized dealer.**

LUBRICATION TABLE

Point of Lubrication	Check at Hours	Change at Hours	Capacity	Anticipated Air Temperature		
				Above +40°F	0° to 40°F	Below 0°F
Engine crankcase	Check before each use	50	Approx. 3 pints 8 ounces	*Cub Cadet* Engine Oil SAE 30	*Cub Cadet* Engine Oil SAE 5W30/ 10W30	*Cub Cadet* Engine Oil SAE 5W20/ 5W30
6-speed (Model 2160) or hydro-drive unit mounted on transmission case with filter (Model 2165)	Check before each use	Add as needed	Approx. 6 qts	*Cub Cadet* Drive System Oil **NOTE:** *Cub Cadet* Drive System Oil is specially formulated for this application. If any other oil is used *Cub Cadet* will not be responsible for substandard performance. Failures due to use of improper fluid are not covered by warranty. For maximum protection, use *Cub Cadet* Drive System Oil.		
Steering knuckles and front axle pivot bolt	10			Use 251H EP grease or equivalent No.2 multi-purpose lithium grease and apply two strokes (minimum) or sufficient grease to flush out old grease and dirt.		
Front wheel bearings	30			Two strokes (minimum) of the lubricator using 251H EP grease or equivalent No. 2 multi-purpose lithium grease.		
Steering gear housing	30			Two strokes (minimum) of the lubricator using 251H EP grease or equivalent No. 2 multi-purpose lithium grease.		
Foot and lift control pivot points	10			Use a liberal amount of high grade lubricating oil.		

LUBRICATION GUIDE

WARNING

The life of any machine depends upon the care it is given. Proper lubrication is a very important part of that care.

Be certain that all lubrication fittings are assembled in place, using the lubrication illustrations as a guide.

Always lubricate the tractor thoroughly before taking it to the field. Use a pressure lubricating gun.

Be sure all fittings are free from dirt and paint so the lubricant is certain to enter the bearing.

Always force the lubricant through the full length of each bearing until it emerges at the end, carrying with it the worn lubricant and any dirt that may have entered the bearing.

Miscellaneous working parts not provided with lubrication fittings should be oiled daily with a good grade of lubricating oil.

Lubricant is cheap. Use plenty of it. Worn parts can be expensive to replace.

Keep your supply of lubricating oil and grease stored in clean containers, and covered to protect from dust and dirt.

Keep the lubricating gun nozzle clean and wipe dirt from grease fittings before lubricating.

The symbols in the illustration indicate the method of application and the hourly intervals to apply the lubricant.

Use a pressure lubricating gun and apply 251H EP grease (or equivalent No. 2 multi-purpose lithium grease) sufficient to flush out the old grease and dirt. Lubricate at hourly intervals indicated on symbols.

Dipstick, use to check engine oil before each use.

LUBRICATION GUIDE

—Before Each Use

1. Engine filler cap and dipstick — Check the oil (with the engine stopped) and add sufficient new oil to bring it to the **"FULL"** mark on the dipstick. Do not overfill. Do not operate the engine if the oil level is below the **"LOW"** mark on the dipstick.

2. Transmission oil level and fill tube — Check the oil with the engine stopped. Keep the lubricant up to **"FULL"** mark on dipstick.

NOTE: Transmission oil level and fill tube also services the following:

1. Rear axle
2. Hydrostatic transmission (Model 2165 only)
3. Clutch assembly (Model 2160 only)

—After Every 10 Hours of Operation

3. Steering knuckles (2) (Both sides) — Use 251H EP grease or equivalent No. 2 multi-purpose lithium grease and apply sufficient grease to flush out old grease and dirt.

4. Transmission oil filter (Model 2165 only) — **NOTE:** After the first 10 hours only, remove the transmission oil filter and replace with a new filter. Refer to **"MAINTENANCE."** Change the transmission oil filter after 50 hours and every 100 hours of operation thereafter.

5. Front axle pivot bolt — Use 251H EP grease or equivalent No. 2 multi-purpose lithium grease and apply sufficient grease to flush out old grease and dirt.

6. Foot and lift control pivot points — Use a liberal amount of high grade lubricating oil.

—After Every 30 Hours of Operation

7. Front wheel bearings — Two or three strokes minimum of the lubricator using 251H EP grease or equivalent No. 2 multi-purpose lithium grease.

8. Steering gear housing (2) — Every 30 hours or three times a season, use 251H EP grease or equivalent No. 2 multi-purpose lithium grease. Apply two strokes with lubricator.

—After Every 50 Hours of Operation

9. Transmission oil filter (Model 2165 only) — **NOTE:** After the first 50 hours only, remove the transmission oil filter and replace with a new filter. Refer to **"MAINTENANCE."** Change the transmission oil filter every 100 hours of operation thereafter.

10. Engine oil drain valve and oil filter — While the engine oil is warm, open the drain valve and remove the oil filter, and drain all of the oil from the crankcase. Close the drain valve. Refer to **"MAINTENANCE," "FILLING THE CRANKCASE" and "OIL FILTER"** for proper oil filling procedure. Refer to **"LUBRICATION TABLE"** for the proper quantity and viscosity to use.

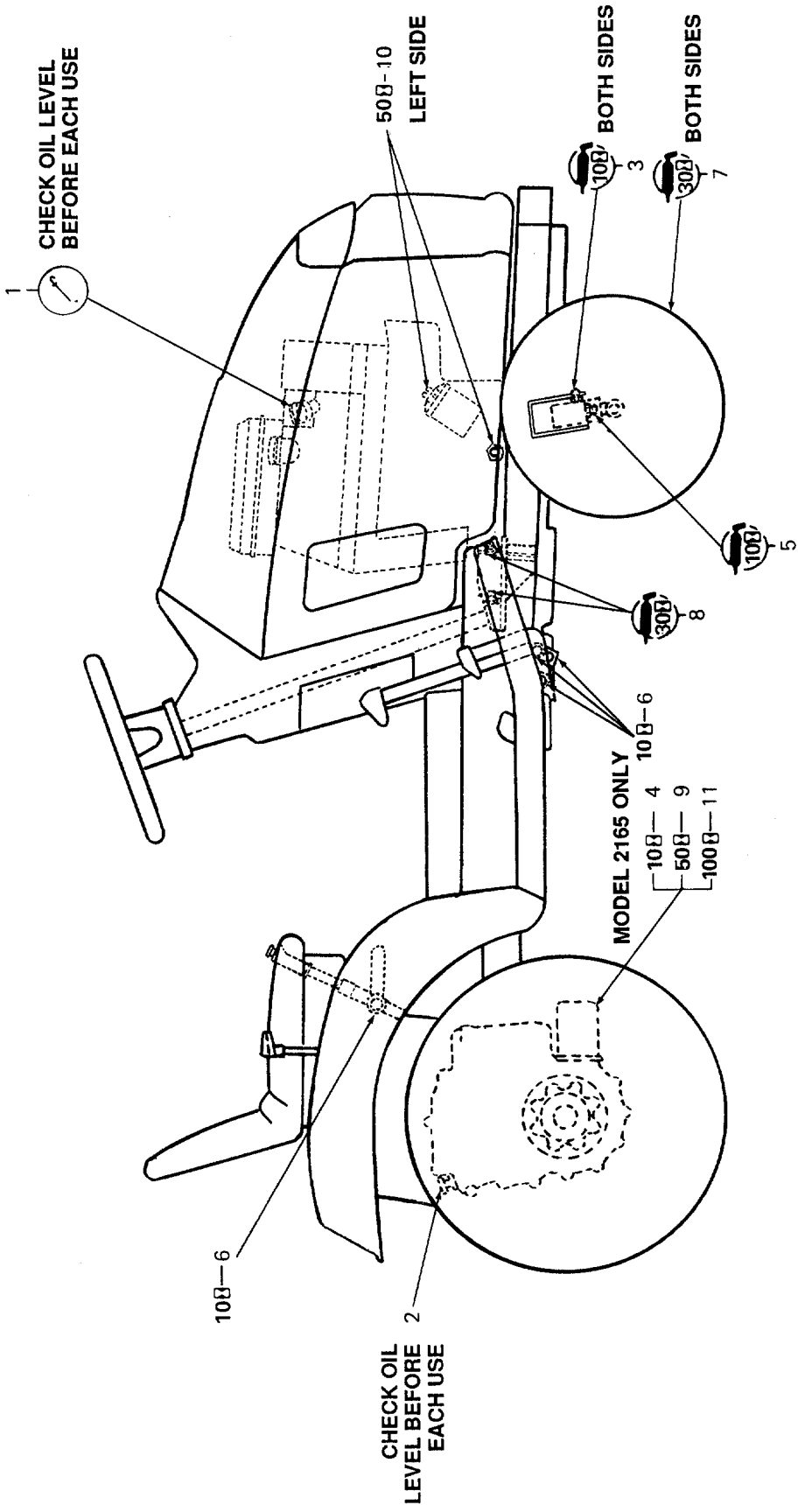
—Every 100 Hours of Operation

11. Transmission oil filter (Model 2165 only) — Change the transmission oil filter and replace with a new filter. Refer to **"MAINTENANCE."**

NOTE

Lubrication information for optional equipment may be found in the manual which is included with the specific piece of optional equipment.

LUBRICATION GUIDE



SPECIFICATIONS

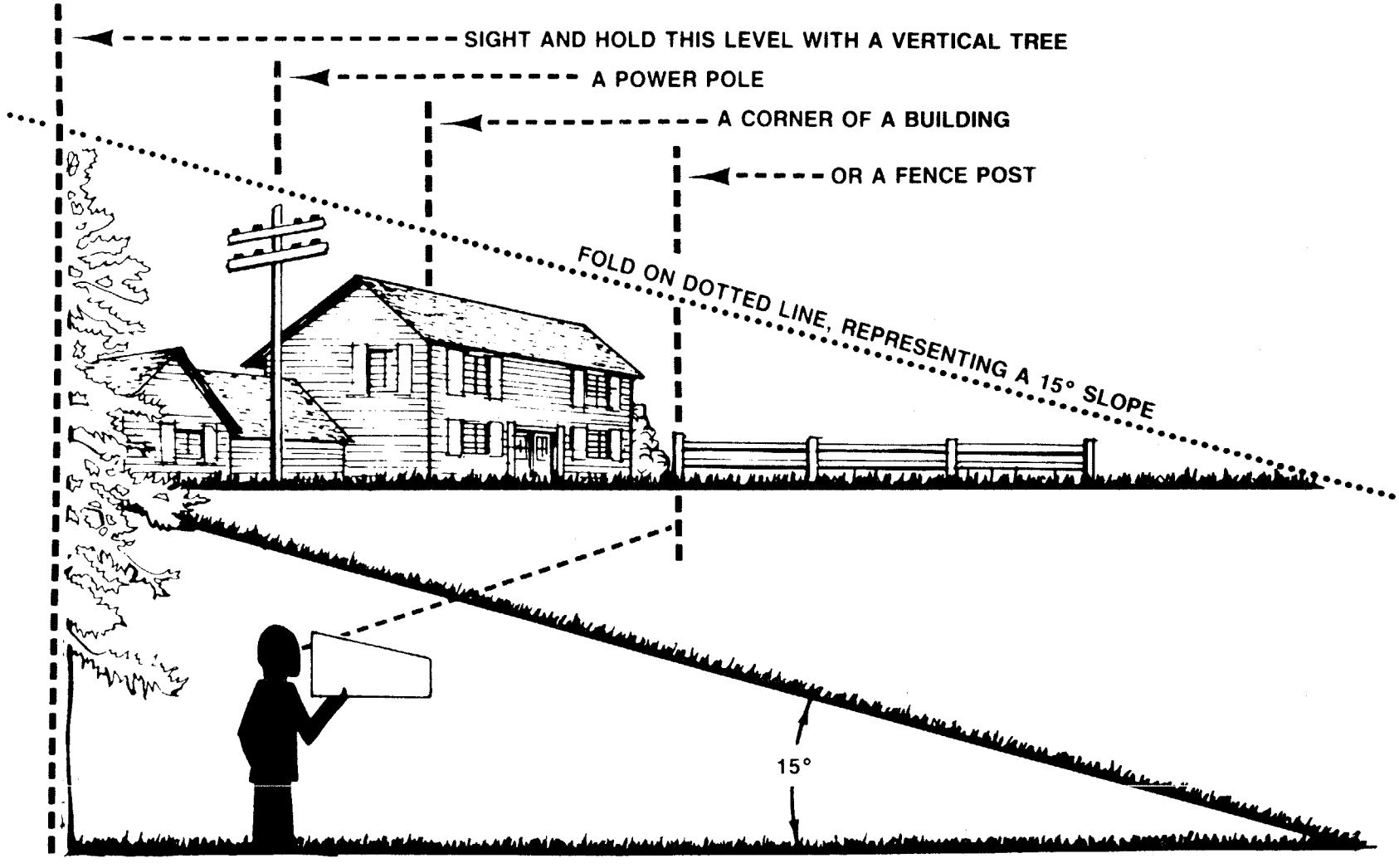
	2160	2165
CAPACITIES		
Fuel tank	3 gallons	
Crankcase (approximately)	3 pints 8 oz.	
Transmission case (approximately)	6 qts.	
SIX SPEED DRIVE		
Speed: Forward	0 to 5.5 mph	
Reverse	0 to 3 mph	
HYDROSTATIC DRIVE		
Speed: Forward		0 to 6 mph
Reverse		0 to 3 mph
ENGINE		
Make and model	Vanguard	
Horsepower	16 HP	
Cylinders	2	
Bore	2.68 in.	
Stroke	2.60 in.	
Displacement (cubic inches)	29.3	
Engine speed (governed)		
Low speed	1200 RPM	
High idle speed		
(no load)	3600 RPM	
(full load)	3350 RPM	
Valve clearance (engine cold)		
Intake	.004-.006 in.	
Exhaust	.004-.006 in.	
Ignition	Battery	
Spark plug gap (*Cub Cadet* No. 759-3336)	.030 in. gap	
ELECTRICAL SYSTEM		
System voltage	12 volt neg. ground	
Battery	725-1707	
Alternator	15 amp regulated	
Fuse (auto type)	20 amp	
Head lamp bulb	759-3693	
BRAKES	Internal expanding	
TIRE SIZES		
Front	16 x 6.5-8	
Rear	23 x 9.5-12	
DIMENSIONS		
Tread:		
Front with 16 x 6.5-8 tires	31.5 in.	
Rear with 23 x 9.5-12 tires	30.25 in.	
Wheelbase	47.00 in.	
Length, over-all	72.00 in.	
Width, over-all	39.00 in.	
Height, over-all (to top of steering wheel)	42.00 in.	
Ground clearance	6.00 in.	
Turning radius	28.00 in.	

Specifications are subject to change without notice.

SLOPE GAUGE

(Keep this sheet in a safe place for future reference.)

USE THIS SHEET AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.


SIGHT AND HOLD THIS LEVEL WITH A VERTICAL TREE
A POWER POLE
A CORNER OF A BUILDING
OR A FENCE POST
FOLD ON DOTTED LINE, REPRESENTING A 15° SLOPE
15°

WARNING

Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2½ feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

Operate RIDING mowers up and down slopes, never across the face of slopes.
Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

EMISSION CONTROL SYSTEMS WARRANTY
(Owner's Defect Warranty Rights and Obligations)

In the interest of the environment, Briggs & Stratton engines that meet strict emission requirements are labeled, "This ULGE engine conforms to 1995-1998 California Emission Control Regulations." EMISSION CONTROL SYSTEMS WARRANTY COVERAGE IS APPLICABLE ONLY TO ENGINES PURCHASED IN CALIFORNIA IN 1995 AND THEREAFTER WHICH ARE USED IN CALIFORNIA.

CALIFORNIA EMISSION CONTROL DEFECTS WARRANTY STATEMENT

The California Air Resources Board and Briggs & Stratton Corporation are pleased to explain the emission control systems warranty on your 1995 and later utility or lawn and garden equipment engine (ULGE). In California, new utility or lawn and garden equipment engines must be designed, built and equipped to meet the State's stringent anti-smog standards. The engine manufacturer must warrant the emission control system on your engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your utility or lawn and garden equipment engine.

Your emission control system includes parts such as the carburetor, air cleaner, ignition system, muffler and catalytic converter. Also included may be connectors and other emission related assemblies.

Where a warrantable condition exists, your authorized dealer or a Briggs & Stratton service dealer will repair your utility or lawn and garden equipment engine at no cost to you including diagnosis, parts and labor.

EMISSION CONTROL DEFECTS WARRANTY COVERAGE

The utility or lawn and garden equipment engines are warranted relative to emission control parts defects for a period of two years, subject to provisions set forth below. If any covered part on your engine is defective, the part will be repaired or replaced by your authorized dealer or a Briggs & Stratton service dealer.

OWNER'S WARRANTY RESPONSIBILITIES

As the utility or lawn and garden equipment owner, you are responsible for the performance of the required maintenance listed in your Owner's Manual. The engine manufacturer recommends that you retain all receipts covering maintenance on your utility or lawn and garden equipment engine, but the engine manufacturer cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.

As the utility or lawn and garden equipment engine owner, you should be aware, however, that the engine manufacturer may deny you warranty coverage if your utility or lawn and garden equipment engine or a part has failed due to abuse, neglect, improper maintenance or unproved modifications.

You are responsible for presenting your utility or lawn and garden equipment engine to your authorized dealer or a Briggs & Stratton service dealer as soon as a problem exists. The undisputed warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should contact your authorized dealer.

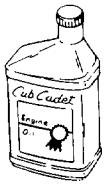
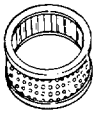
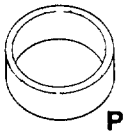
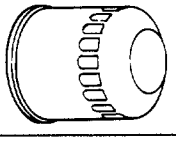
The emission warranty is a defects warranty. Defects are judged on normal engine performance. The warranty is not related to an in-use emission test.

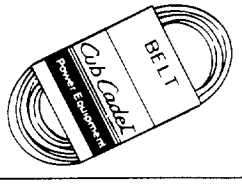
EMISSION CONTROL DEFECTS WARRANTY PROVISIONS

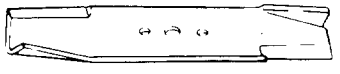
The following are specific provisions relative to your Emission Control Defects Warranty Coverage. It is in addition to the manufacturer's engine warranty.

1. Warranted Parts – Coverage under this warranty extends only to the parts listed below (the emission control systems parts) to the extent these parts were present on the engine purchased.
   a. Fuel Metering System
      - Cold start enrichment system (soft choke)
      - Fuel pump
   b. Air Induction System
      - Air cleaner
      - Carburetor and internal parts
      - Intake manifold
   c. Ignition System
      - Spark plug(s)
      - Magneto ignition system
   d. Catalyst System
      - Catalytic converter
      - Exhaust manifold
      - Air injection system or pulse valve
   e. Miscellaneous items used in above systems
      - Vacuum, temperature, position, time sensitive valves and switches
      - Connectors and assemblies
2. Length of Coverage – The engine manufacturer warrants to the initial owner and each subsequent purchaser that the "warranted parts" shall be free from defects in materials and workmanship which caused the failure of the "warranted parts" for a period of two years from the date the engine is delivered to a retail purchaser.
3. No Charge – Repair or replacement of any "warranted part" will be performed at no charge to the owner, including diagnostic labor which leads to the determination that a "warranted part" is defective, if the diagnostic work is performed at your authorized dealer or an authorized Briggs & Stratton service dealer. For emission warranty service contact your nearest authorized dealer or Briggs & Stratton service dealer as listed in the "Yellow Pages" under "Engines, Gasoline," "Gasoline Engines," "Lawn Mowers," or similar category.
4. Claims and Coverage Exclusions – Warranty claims shall be filed in accordance with the provisions of the Engine Warranty Policy. Warranty coverage shall be excluded for failures of "warranted parts" which are not original Briggs & Stratton parts or because of abuse, neglect or improper maintenance as set forth in the Engine Warranty Policy. Briggs & Stratton is not liable to cover failures of "warranted parts" caused by the use of add-on, non-original or modified parts.
5. Maintenance – Any "warranted part" which is not scheduled for replacement as required maintenance or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" shall be warranted as to defects for the warranty period. Any "warranted part" which is scheduled for replacement as required maintenance shall be warranted as to defects only for the period of time up to the first scheduled replacement for that part. Any replacement part that is equivalent in performance and durability may be used in the performance of any maintenance or repairs. The owner is responsible for the performance of all required maintenance, as defined in the Owner's Manual.
6. Consequential Coverage – Coverage hereunder shall extend to the failure of any engine components caused by the failure of any "warranted part" still under warranty.

MAINTENANCE PARTS CHART

MODELS 2160 AND 2165		SERIES 2000 16 HP VANGUARD
ENGINE OIL 	**Engine Oil Requirements approx. . . 3-1/2 pints**	**Part No.**
	Cub Cadet engine oil Ambient temperature viscosity (Grade SG or SH) Above +40°F SAE30 0° to +40°F SAE 5W30 or 10W30 Below 0°F SAE 5W20 or 5W30	 737-3029 737-3030A (10W30) 737-3049 (5W30)
AIR FILTER  **CARTRIDGE**  **FOAM PRE-CLEANER**	**Air Filter Requirements**	**Part No.**
	Clean air filter per instructions in your owner's manual . . . . . . under maintenance air cleaner.	Cartridge BS-394018 Foam Pre-cleaner BS-272490
ENGINE OIL FILTER	**Engine Oil Filter Requirements**	**Part No.**
	Change every 50 hours	BS-492932
SPARK PLUG	**Gap Requirements**	**Part No.**
	.030 inch gap	759-3336
TRANSMISSION OIL FILTER 	**Oil Filter Requirements (2165 only)**	**Part No.**
	Change every 100 hours	723-3014
TRANSMISSION OIL	**Transmission Oil Requirements approx. . . . 6 qts**	**Part No.**
	Check before each use 1 quart 1 gallon	 737-3055 737-3054

BELTS 	Deck Blade Belt		Tractor to Deck Belt	
	Model	**Part No.**	**Model**	**Part No.**
	46" Deck 48" Deck	754-3039 754-3041	46" Deck 48" Deck	754-3055A 754-3068

BLADES 	Original Equipment Blade		Hard Coated Blade	
	Size	**Part No.**	**Size**	**Part No.**
	46"	742-3015 Center (1) 742-3016 Outer (2)	48"	759-3677 (3)
			Hi-Lift Blade	
	48"	742-3019 (3)	48"	742-3025 (3)
	Bagging Blade		Hard Coated Bagging Blade	
	Size	**Part No.**	**Size**	**Part No.**
	46"	742-3010 Center (1) 742-3011 Outer (2)	46"	759-3398 Center (1) 759-3397 Outer (2)